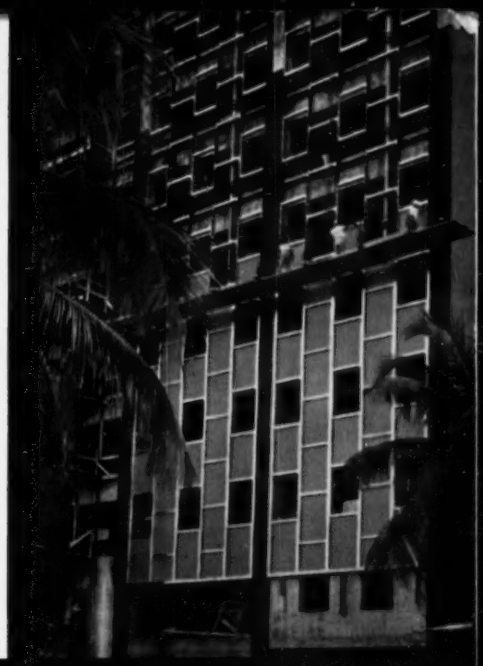
PRICE $1.00

DECEMBER, 1957

Construction Methods AND EQUIPMENT

A McGRAW-HILL PUBLICATION



Workmen place blue porcelain enamel-on-steel curtain wall panels for a bank building in Florida at the rate of one floor a day. They set the panels into mullions by removable screw-on retainer beads.

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175 units rush Illinois Toll Road

with Yellow Strand Wire Rope

The North Illinois Tollway is a beehive of activity. This will be the four and six-lane super highway connecting Chicago and Rockford. The contract calls for completion in July, 1958. Bad weather slowed down the job last spring.

Now, the byword is "rush." On the S. J. Groves & Sons Co. section near Des Plaines, Illinois, 175 pieces of equipment, including scrapers, dozers, trailers and cranes scamper through round-the-clock shifts. Probably the biggest collection of equipment on any one job in Illinois road building history is at work.

This is a tough role for men and machines. Beating close deadlines shows up the in-built stamina in equipment. It separates the "wheat from the chaff." That's why the choice of wire rope to operate the scrapers, dozers, trailers and cranes is Yellow Strand.

Quality-manufactured, dependable Yellow Strand Wire Rope stands the abuse of long shifts. Savings in down time and replacement time are substantial. These same qualities of long life Yellow Strand "POWERSTEEL" and Yellow Strand Flattened Strand can save money for you. Yellow Strand Wire Rope is stocked by your nearby distributor. If you don't know him, write us direct for his name.

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B.F.Goodrich V belt briefs—

TIPS ON THE CARE, MAINTENANCE AND SELECTION OF V BELTS FOR INDUSTRY

There's danger in replacing just one V belt at a time

When one or two belts in a set become worn or damaged, there's a big temptation to replace just the useless belts. Trouble is that the remaining belts have been stretched through use beyond their original length. The new, shorter belts have to carry most of the load. A severe shock or load strain will easily break these new belts. That's why it's always better to install a matched set of V belts rather than replace one belt at a time. Used belts can be put on a drive requiring a smaller number of belts.

This simple test can increase belt life 50% or more

Maintaining correct tension is one of the most important rules of V belt care. It will give belts at least 50% longer life—often doubles life.

Belts that are too loose will slip, causing both belt and sheave to wear out. If they sag too much, the snapping action caused when motor starts or when peak loads occur can actually break belts in two. ***To test tension,*** press down firmly on each belt. Belts that are properly tensioned will depress an amount equal to their own thickness for each 4 feet of center-to-center distance. For example, if the center-to-center distance is 8 feet, a D-section belt which is ¾ inch thick should depress twice its thickness—1½ inches.

What gives V belts their gripping power?

When a V belt fits properly into the sheave groove, it hugs the pulley side wall, produces its own grip. This high pressure contact is what gives the V belt its pulling power.

Here's why V belts made with straight sides give *extra* gripping power, transmit power better and more efficiently than other types of belts:

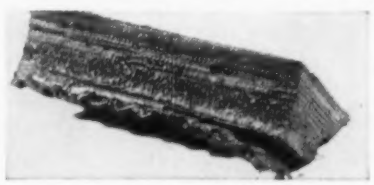
A V belt bends as it wraps around the sheave. The belt sides try to bulge, but the pulley side wall won't let them. As a result, the belt wedges itself tightly into the pulley groove.

To get an idea of how this wedging action happens, try bending a V belt outside of the pulley (as shown in the pictures at right). The bulge you see represents the *force* of this gripping action because the rubber is actually compressed by the pulley walls. This force creates all the pulling power needed for efficient service, yet without any sacrifice of belt life.

Place ruler down side of belt as shown. Ruler lies flat.

Bend the V belt, as it would be around a sheave. Now place ruler down side of belt. It no longer lies flat.

What caused this V belt failure?



Appearance: Slip burn on belt.

Cause: Belt too loose; friction of belt against pulley groove burned rubber.

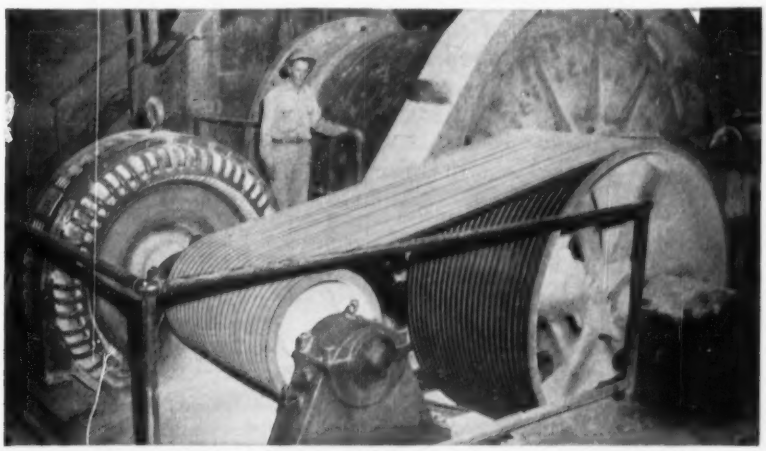
Prevention: Check tension as described in the first column. Inspect drive for overload and redesign if necessary.

Grommet eliminates cause of 4 out of 5 V belt failures

Unlike other V belts, all the load carrying cords in B.F. Goodrich Grommet V belts are concentrated in twin grommets. These grommets are cord loops made like giant twisted cables except that they're endless. There are no splices or overlaps in this cord—no weak spots to cause premature failure. Since the section where the cords overlap in ordinary V belts is where 80% of the failures occur, this cause for failure is eliminated in B. F. Goodrich Grommet belts. As a result, Grommet belts last 20 to 50% longer, depending on the service (the more severe the service, the greater the increase over ordinary belts).

Ask a factory-trained specialist

For help in selecting V belts for any kind of service, call the man who is a specialist in V belts—your B.F.Goodrich distributor. He can help you cut costs by getting longer life from your V belt drives. *B.F.Goodrich Industrial Products Company, Dept. M-235, Akron 18, Ohio.*



The strain of starting a heavy ball mill and keeping it turning was wearing out ordinary V belts before their time. Then Grommet V belts were tried. Because the B.F.Goodrich V belt is strong enough to pull heavy loads and take sudden jerks, the set shown lasted 6 years —longer than any other V belts used.

B.F.Goodrich

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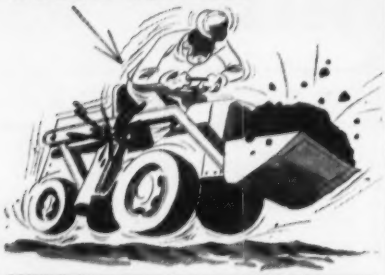

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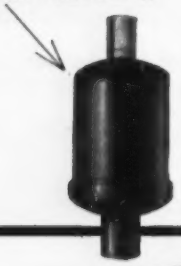

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Longer Life for Bucket Loader! **Greer Damper** eliminates harmful shock that damages cylinders, hose, packings and causes structural strain. Parts last longer, perform better! Cuts downtime and maintenance. Reduces operating costs.

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for Greer Bulletin 1200 for full details, or write: **Greer Hydraulics Incorporated, Jamaica 30, N.Y.**

Construction Methods AND EQUIPMENT

DECEMBER, 1957

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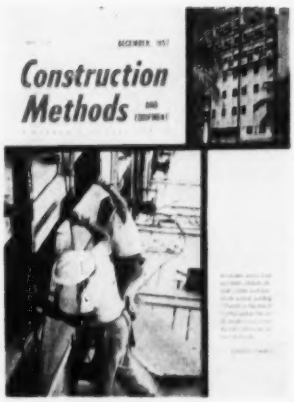

On the Cover

Workmen stand on hanging scaffolds to place blue porcelain enamel-on-steel curtain wall panels at rate of one floor a day for the Federal Savings and Loan Association Building in Miami Beach, Fla. Hurricane-proof panels are raised by hand winch to placing height. Workmen then set the panels into stainless steel mullions and anchor them with removable screw-on retainer beads. Davidson Enamel Products Co. of Lima, Ohio, fabricated the panels for Arkin Construction Co., Miami general contractor.

MEMBER ABP ABC

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December, 1957

Pay Dirt in This Issue

Horizontal Piles Hold Hillside Cofferdam 54

To brace a pit midway in a river bank on a 1:1 slope, piles are driven 100 ft into the bank on uphill side.

Match the Machine to the Job 57

Profit margins are much too slim these days to permit anything less than top-notch equipment applications.

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With a substantial early completion bonus as incentive, the tempo of construction is approaching record levels.

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Joining lengths of concrete sewer pipe in 96-ft units speeds laying by cutting the amount of underwater work.

Huge Bents Support Record Anchor Arm 72

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NEXT MONTH

Building a $800,000 concrete diversion dam across the Potomac River in Little Falls, Md., is proving a pesky job for James McHugh Construction Co. of Chicago. But McHugh is meeting the challenge with some neat tricks, including a temporary bridge based on the dam's crest that serves as a haul road.

ROCK... IT EATS IT!

Surprises do occur! Sure, on a road job you know in most cases what you are up against but there are times when an unsuspected, hidden ledge of rock turns up.

You are always ready for the worst when you're pioneering with a Northwest. Rock? Northwest eats it! With plenty of power and the Northwest Dual Independent Crowd that utilizes force most independent crowd shovels *waste*, you have digging power plus. But, there has to be more than that behind the digging end of a *real* Rock Shovel.

Rotating and Crawler Bases are heat treated alloy steel castings. Machinery Side Frames are alloy cast steel. Here is strength to take the shocks of rock digging, and design that assures permanence of shaft alignment and the elimination of weaving that causes wear.

The "Feather-Touch" Clutch Control provides power operation of the main drum clutch and retains the *feel of the load* that makes for smooth handling in nudging out the big ones. Ease of operation is accomplished without resorting to valves, pumps and delicate mechanisms. Uniform Pressure Swing Clutches eliminate the jerks and grabs that increase swing time and cause spillage. The Cushion Clutch reduces engine dragdown and stalling and eliminates shock overloads before they reach machinery.

On top of that you have a rig with a reputation for always being ready to go. Make your next machine a *real* Rock Shovel — a Northwest.

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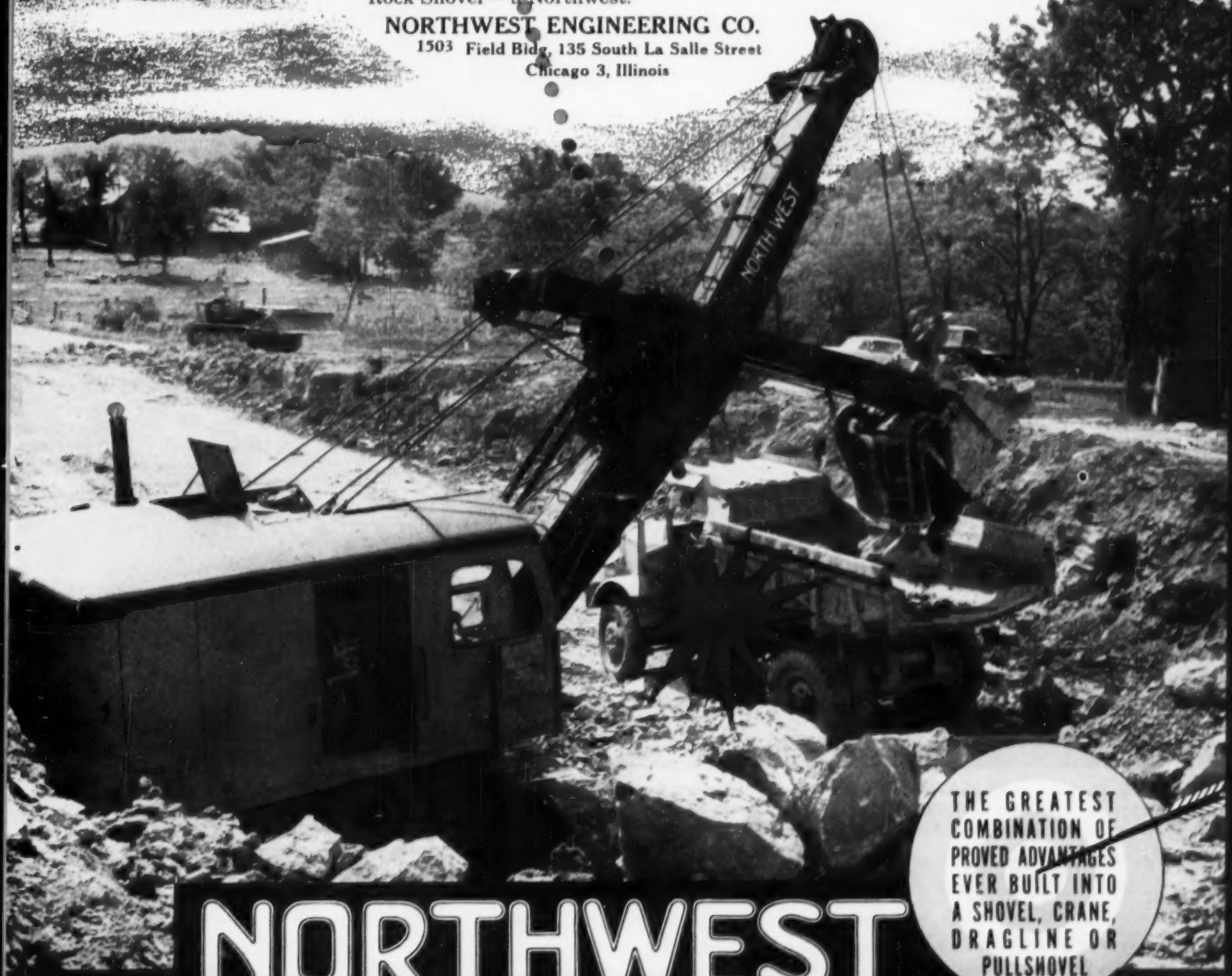

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(Advertisement)

Blaw-Knox paving equipment helps set production record on Illinois Toll Road

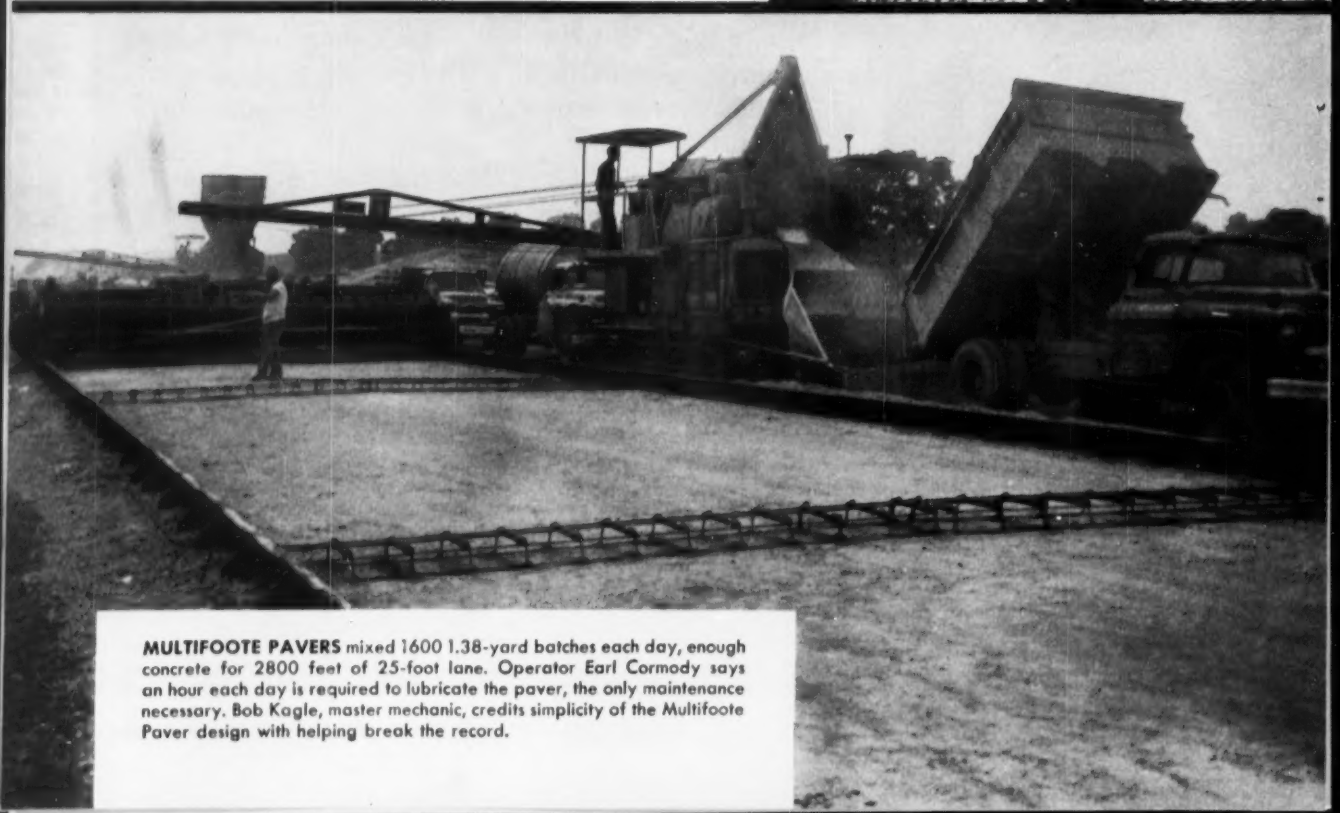
Rugged automatic equipment paves 3100 feet of 10-inch reinforced concrete, 25 feet wide, in a day's operation

Anthony Constantino, general superintendent for John C. Peterson Construction Corporation credits the "high efficiency and durability of the Blaw-Knox Machines" his company used on the Illinois Toll Road with an outstanding contribution to the performance of the John C. Peterson Construction Corporation Forces.

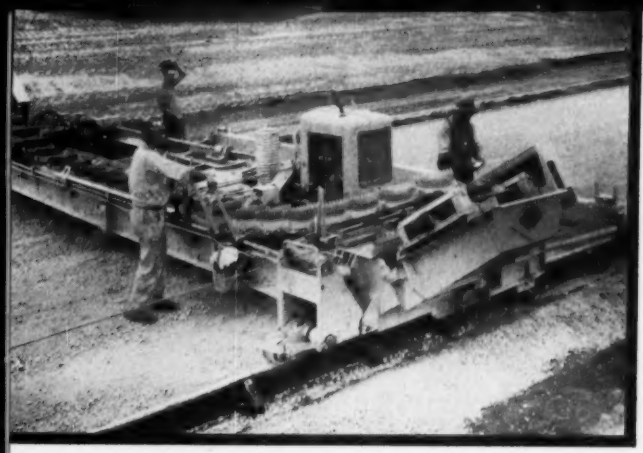
Reynold (Scotty) Scott, paving superintendent states that "The machines took a terrific beating by constant usage, but they have proven themselves to be rugged, durable and efficient. Any downtime would hold up the job with a serious financial loss, but with the Blaw-Knox Machines, we were able to complete our operation well ahead of schedule."

Record-shattering production to rigid specifications like those set for the Illinois toll road is being delivered time and again by Blaw-Knox Concrete Paving Equipment. All over America, contractors are squeezing more value out of their equipment dollar with Blaw-Knox machines. They're rugged, built for automatic, high production rates that mean more profit on every job. Why not see your Blaw-Knox dealer? He has all the details.

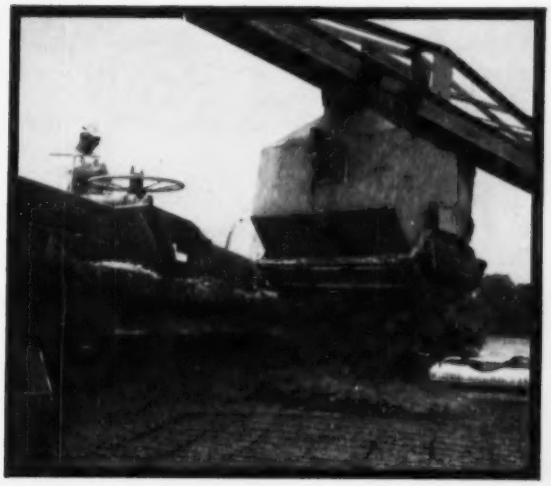
BLAW-KNOX PAVING EQUIPMENT USED: 10,000 10″ x 10′ self-aligning road forms—Precision Subgrader—two 34E Dual Drum Concrete Pavers—two Concrete Spreaders (one with vibrator)—Concrete finisher—Base Paver—Road and Shoulder Widener—Automatic Cement and Aggregate Batch Plants—four 6 cu. yd. HiBoy Trukmixers.



MULTIFOOTE PAVERS mixed 1600 1.38-yard batches each day, enough concrete for 2800 feet of 25-foot lane. Operator Earl Cormody says an hour each day is required to lubricate the paver, the only maintenance necessary. Bob Kagle, master mechanic, credits simplicity of the Multifoote Paver design with helping break the record.



BLAW-KNOX SUBGRADER cuts and levels the grade to the required 10" template. Running on Blaw-Knox road forms, the subgrader excavates by vibration of the forward edge of the cutting tool. Quick adjustable strike-off gives perfect final crown to the grade.



SPREADER distributes concrete uniformly to correct width and elevation without disturbing contraction joint baskets or reinforcing mesh. It is the only spreader that moves concrete longitudinally and transversely. Vibrator attachment consolidates and seals-off concrete for fast accurate finishing.

FINISHER strikes-off concrete to required crown and trowels surface, minimizing final floating operation. Quick crowning screed boards meet super elevated curves and tangent pavement requirements. Wide screed ends prevent spillage.

Electronically Controlled Batch Plant delivers once every 15 seconds

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4⅝ x 6; 691 cu. in. displ.; Eng. Max hp—150 @ 1600 rpm; Power Unit Int. load hp—125 @ 1600 rpm

UV-549 V-8-Cyl. Carbureted

4⅛ x 4½; 549 cu. in. displ.; Eng. Max. hp: Gaso.—257 @ 3400 rpm; Power Unit Net hp: Gaso.—209 @ 2600 rpm; LPG—200 @ 2600 rpm

UV-461 V-8-Cyl. Carbureted

4⅛ x 4½; 461 cu. in. displ.; Eng. Max. hp: Gaso.—226 @ 3600 rpm; Power Unit Net hp: Gaso.—174 @ 2600 rpm; LPG—175 @ 2600 rpm

UV-401 V-8-Cyl. Carbureted

4⅛ x 3⅝; 401 cu. in. displ.; Eng. Max. hp: Gaso.—206 @ 3600 rpm; Power Unit Net hp: Gaso.—160 @ 2800 rpm; LPG—160 @ 2800 rpm

U-281 4-Cyl. Carbureted

4⅛ x 5½; 281 cu. in. displ.; Power Unit Net hp: Gaso.—67.5 @ 1800 rpm; LPG—73 @ 1800 rpm; Dist.—46.5 @ 1600 rpm

U-175 4-Cyl. Carbureted

3⅝ x 4½; 175 cu. in. displ.; Power Unit Net hp: Gaso.—50 @ 2000 rpm; LPG—51.5 @ 2000 rpm; Dist. 35.4 @ 1800 rpm

U-123 4-Cyl. Carbureted

3⅜ x 4; 123 cu. in. displ.; Power Unit Net hp: Gaso.—33 @ 2000 rpm; LPG—28 @ 2000 rpm; Dist. 22.8 @ 1800 rpm

UC-60 4-Cyl. Carbureted

3¼ x 3½; 60 cu. in. displ.; Power Unit Net hp: Gaso.—16.5 @ 2500 rpm; Nat. Gas—13.5 @ 2500 rpm

U-1091 6-Cyl. Carbureted

5¾ x 7; 1,091 cu. in. displ.; Power Unit Net hp: Propane—255 @ 1600 rpm; Nat. Gas—232 @ 1600 rpm

U-501 6-Cyl. Carbureted

4½ x 3½; 501 cu. in. displ.; Basic Eng. Max. hp: Gaso.—212 @ 3000 rpm; Power Unit Net hp: Gaso.—133 @ 2200 rpm; LPG—128 @ 2200 rpm

U-450 6-Cyl. Carbureted

4⅛ x 6; 450 cu. in. displ.; Basic Eng. Max. hp: Gaso.—182 @ 3[illegible] rpm; Power Unit Net hp: Gaso.—126 @ 2200 rpm; LPG 124 @ 2200 rpm

UD-225 6-Cyl. Diesel

4⅛ x 5½; 525 cu. in. displ.; Eng. Max. hp—137 @ 2000 rpm; Power Unit Int. load hp—115 @ 1800 rpm

UD-14A 4-Cyl. Diesel

4¾ x 6½; 461 cu. in. displ.; Eng. Max. hp—105 @ 1800 rpm; Power Unit Int. load hp—76 @ 1400 rpm

UD-350 4-Cyl. Diesel

4⅛ x 5½; 350 cu. in. displ.; Eng. Max. hp—92 @ 2000 rpm; Power Unit Int. load hp—75 @ 1800 rpm

UD-281 4-Cyl. Diesel

4⅛ x 5½; 281 cu. in. displ.; Eng. Max hp—68 @ 1800 rpm; Power Unit Int. load hp—60 @ 1800 rpm

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All 21 Internationals shown here are available in varying stages from a basic engine to a complete power unit.

The 14 International carbureted power units, ranging from 16 to over 200 net hp, can be equipped to burn either of two or more fuels—the one most economical for your use. And there's no guesswork about power ratings of an International on the specified fuel. Carburetion equipment is factory tested and installed.

Seven International diesels, rated from 60 to 250 net hp (300 max. hp), are outstanding for easy, all-weather starting and low consumption of No. 2 Diesel fuel. Like the carbureted models, these rugged 4-cycle units are fully sealed against life-robbing dirt and dust.

See your International Power Unit Distributor or Dealer soon. He will show you a power-packed International that will make more money for you.

International® Construction Equipment

International Harvester Company, 180 N. Michigan Ave., Chicago 1, Illinois

Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment

U-372 8-Cyl. Carbureted

4¾ x 5½; 372 cu. in. displ.; Basic Eng. Max. hp: Gaso.—165 @ 3200 rpm; Power Unit Net hp: Gaso.—104 @ 2200 rpm; LPG—98 @ 2200 rpm

U-308 8-Cyl. Carbureted

3⅞ x 4½; 308 cu. in. displ.; Basic Eng. Max. hp: Gaso.—154 @ 3600 rpm; Power Unit Net hp: Gaso.—87.5 @ 2400 rpm; LPG—91.2 @ 2400 rpm

U-264-6 6-Cyl. Carbureted

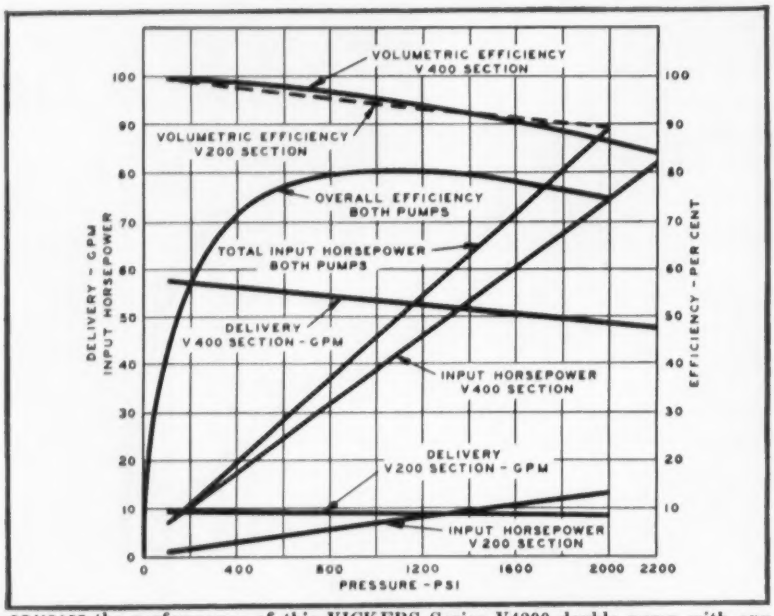
3⅞ x 4½; 264 cu. in. displ.; Basic Eng. Max. hp: Gaso.—153 @ 3700 rpm; Power Unit Net hp: Gaso.—78 @ 2400 rpm; LPG—80.8 @ 2400 rpm

U-220 6-Cyl. Carbureted

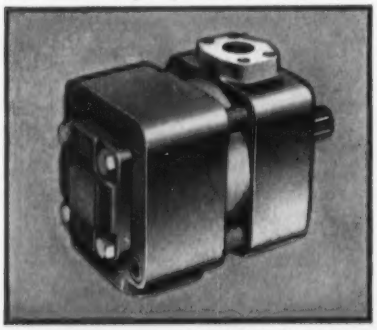
3⅞ x 4½; 220 cu. in. displ.; Basic Eng. Max. hp: Gaso.—112 @ 3700 rpm; Power Unit Net hp: Gaso.—68 @ 2400 rpm; LPG 68 @ 2400 rpm

On tractor shovels, scrapers, lift trucks, truck cranes, bulldozers, motor graders, front end loaders, ditchers, trucks, buses and many other types of mobile equipment . . .

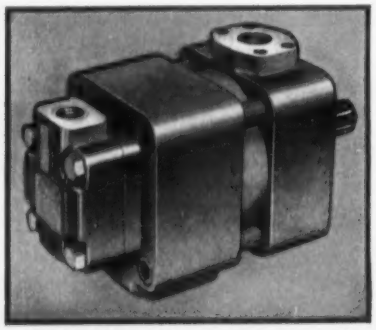
The *High Efficiency* of Vickers Balanced Vane Pumps Means *More* Work From *Less* Input Power


VOLUMETRIC EFFICIENCY V400 SECTION
VOLUMETRIC EFFICIENCY V200 SECTION
OVERALL EFFICIENCY BOTH PUMPS
TOTAL INPUT HORSEPOWER BOTH PUMPS
DELIVERY V400 SECTION - GPM
INPUT HORSEPOWER V400 SECTION
DELIVERY V200 SECTION - GPM
INPUT HORSEPOWER V200 SECTION
DELIVERY - GPM INPUT HORSEPOWER
EFFICIENCY - PER CENT
PRESSURE - PSI
0 400 800 1200 1600 2000 2200
0 10 20 30 40 50 60 70 80 90 100

COMPARE the performance of this VICKERS Series V4200 double pump with any other hydraulic pump used on mobile equipment. The high overall efficiency in the operating pressure range is maintained throughout the long pump life (see right hand column for reasons). This performance is characteristic of all Vickers Vane Pumps . . . both single and double. (Above curves are in accordance with SAE test code except speed is 2000 rpm.)



Series V400 pump (single) is large section of double pump at right; performance characteristics are shown above. In addition to the advantages mentioned in the right hand column, Vickers Vane Pumps require minimum maintenance and are exceptionally compact. Their various mountings and optional pressure outlet connection positions provide greater application versatility. See pages 4-5, Bulletin M5101A.



Series V4200 double pump for operating two independent hydraulic circuits from one power source. In numerous mobile applications, this is desirable to eliminate all possible chance of one operation interfering with another . . . when necessary to operate two machine components simultaneously at different speeds and hydraulic pressures. See pages 6-7, Bulletin M5101A.

You can get more useful work out of a given engine when a Vickers Balanced Vane Pump is used in the hydraulic control system. Its exceptionally high volumetric and overall efficiency are available not only when the pump is new but also throughout its long life.

The performance curves at the left merit your careful consideration. Note that the overall efficiency is approximately 80% at operating pressures used. Compare this with the rapid decline in overall efficiency of the usual gear pump at higher pressures. This large difference means a very substantial saving in engine horsepower and fuel consumption. To do a given job, it often means that a smaller engine can be used. It further means less heating of the oil.

Vickers Balanced Vane Pumps have many other benefits for the user. Optimum running clearances are automatically maintained over the entire operating pressure range and throughout an exceptionally long pump life. Complete hydraulic balance eliminates pressure-induced bearing loads. Other bonuses are: automatic wear compensation, temperature adaptability, simple installation, and easier cold weather starting.

Millions of Vickers Vane Pumps are in daily use. For further information, write for Bulletin M5101A.

7856

VICKERS INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
Mobile Hydraulics Division
ADMINISTRATIVE and ENGINEERING CENTER
Department 1494 • Detroit 32, Michigan

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In Canada: Vickers-Sperry of Canada, Ltd., Toronto & Montreal

Construction News From Washington

Washington, D.C.
December, 1957

Sputnik Is Good For Construction

Military construction will get a big boost in the year starting Jan. 1. U. S. contractors will be asked to bid on speeded-up Air Force projects for runway paving, parking aprons, maintenance hangars, and other facilities.

Next year, too, U. S. firms may expect the first invitations to bid on overseas launching sites for intermediate range ballistic missiles (IRBM's) in NATO countries, probably with more chance than heretofore to land these NATO jobs.

All this work will open up at a faster rate as a result of the government's turnaround on defense spending.

President Eisenhower has established the speed-up as government policy, and the defense agencies are recasting their plans to step up construction for dispersing heavy and medium bombers on more bases, extending the range and scope of radar fences, equipping bases for faster takeoff of the full complement of planes at each location, and building rings of IRBM sites overseas.

First evidence of the accelerated program will show up in bid calls for the 28 U. S. bomber dispersal bases already approved and funded by Congress for $350 million of construction contracts. About a dozen of these bases already are under way and nearing completion as part of the first increment of the dispersal program for B-52 wings initiated during the fiscal year that ended June 30. In addition, construction awards for another $200 million of work on these and a half dozen more dispersal bases for heavy bomber units, plus several similar bases for medium bombers, will be speeded under the second phase of the program that Congress voted four months ago.

These jobs can move without delay. Construction contracts for other facilities to enable fast takeoff of aircraft, improve the warning system, and house personnel and equipment will be pushed as rapidly as plans are readied.

NLRB Tightens Rules

The National Labor Relations Board has outlawed some construction labor organizing methods.

In three recent decisions, the Board attacks key union practices—particular favorites of the Building Trades and the Teamsters—for rounding up new members. These rulings hits labor where it directs its organizing efforts at the employer, rather than at the employe it wants for a member. The decisions:

- Outlaw the "hot cargo" contract in which a common carrier agrees not to handle goods of an employer in dispute with a union.
- Bar a union from picketing an employer's premises for recognition where it does not represent a majority of the workers.
- Forbids a union to urge a boycott on an employer with whom it is

seeking to win recognition but where it does not have majority support among the employes.

The Teamsters and the Building Trades have used these tactics on employers as more simple, less costly, and frequently more effective in signing a contract than getting a vote of the workers.

Highways and Congress

You'll be interested in some important highway legislation that is expected out of the next Congress, which convenes in January.

Here's the way it looks to expert Washington observers as the session approaches:

Authorized federal aid (50-50) for primary, secondary, and urban roads likely will be increased about $25 million a year—up from $875 million in fiscal year 1959 (the 12-month period beginning next July)—to $900 million in fiscal 1960 and $925 million in 1961.

Bets on this forecast will be hedged, it should be noted, until Administration thinking is crystallized on how to handle the bigger spending for direct military and other security needs made necessary by Russian gains in rocketry.

Higher cost estimates for the Interstate System likely will be adopted. These will become the basis for distribution of interstate construction funds to the states beginning in fiscal 1960. The Bureau of Public Roads will submit its new costs estimates to Congress on January 12.

Carpenters and McClellan

Sen. John L. McClellan's select committee on labor-management racketeering has subpoenaed records of the 750,000 member International Brotherhood of Carpenters and its president, Maurice A. Hutcheson.

There's no hint of what the committee is looking into, beyond what one well-placed committee source calls "stories about some irregular use of union money."

There's also no assurance that the subpoena of records will ever lead to public hearings. If hearings are held, they are several months away—next February or later.

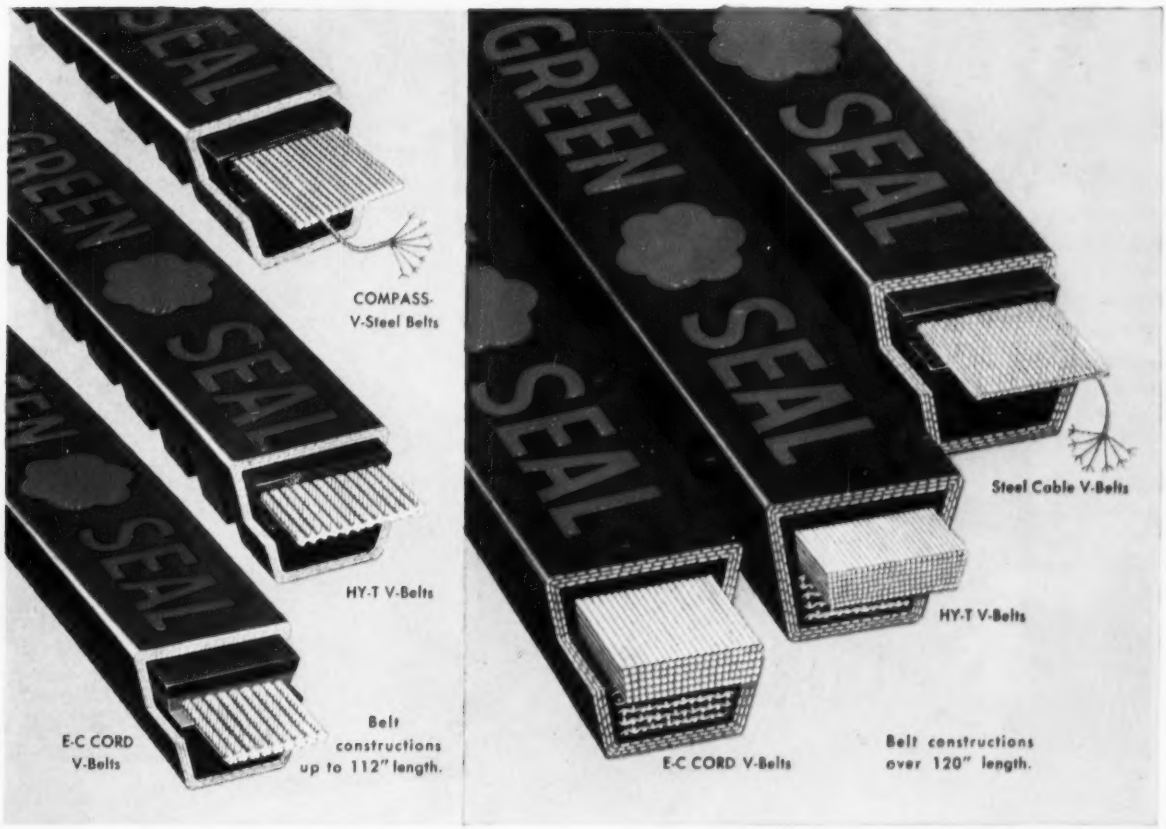
College Building

U.S. Office of Education analysts forecast more than $3.6 billion of college construction work for the five-year period 1956-60 compared with less than $1.8 billion in the preceding five years. Public institutions will invest more than $2.25 billion in construction during the period, and private colleges and universities will spend more than $1.3 billion.

Of the national total, classroom, laboratory buildings, and the like will account for more than $1.75 billion; dormitories and related facilities will amount to more than $1.1 billion. The remainder will go to administrative, multipurpose, and research buildings.

Do you know the inside story of

V-Belts with the Green Seal?



Until recently dimensional stability was possible only in V-Belts with steel load-carriers as developed by Goodyear. But now you can have that stability in a complete line of belts – thanks to the development of Triple-Tempered (3-T) cord–synthetic cord tempered by Tension, Temperature and Time.

What's your pay-off from this dimensional stability?

When you're belting multiple drives, it's your one guarantee that every set of matched belts will *really* match. No matter how long you store them, they'll *stay* matched, too.

And once they're installed, you've got belts designed and built to work as a perfect team–without individual belts either "loafing" or overworking. In fact, you're protected from all the usual mismatching headaches that also include slipping, stretching, scorching.

In other words, you're belted for maximum trouble-free horsepower hours at minimum cost. There's no substitute for that kind of performance – or for the V-Belts with the Green Seal that give it to you – every time.

So see your dealer about the V-Belts with true dimensional stability–the V-Belts with the Green Seal. Or write Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS
with the GREEN SEAL by

GOODYEAR

THE GREATEST NAME IN RUBBER

Compass, E-C Cord, Hy-T, Green Seal–T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Watch "Goodyear Theater" on TV – every other Monday 9:30 P.M., E.S.T.

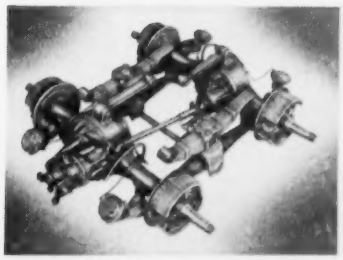
INTERNATIONAL six-wheelers cover the range from 22,000 lbs. GVW to 76,000 lbs. GCW in conventional and COE design. There is one practically custom-built for every hauling job in the world's most complete truck line. Widest choice of load-moving and load-carrying components to keep operating and maintenance cost lowest.

Here's a unique double-duty vehicle – the new INTERNATIONAL Travelette! Seats six big people comfortably in two full-width seats! Hauls up to a full ton load in all-steel 6-ft. pickup body. Service-utility body and four-wheel-drive models available.

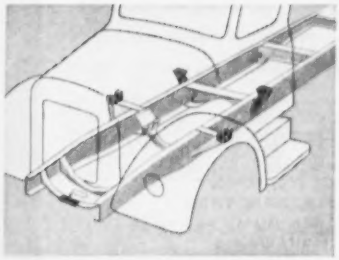
INTERNATIONAL TRUCKS

Longer Tandem Life

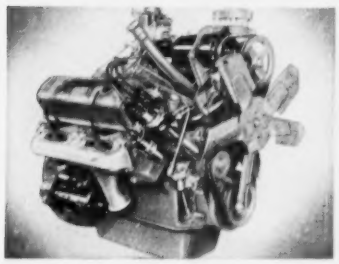
Just one reason why contractors find International Trucks cost least to own!



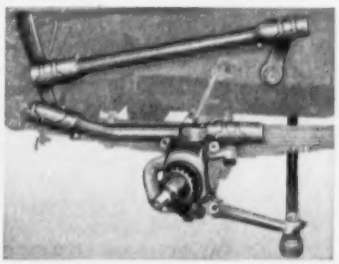
Pull through rugged off-highway terrain. Sturdy, long lasting tandem has extra flotation, positive traction always.



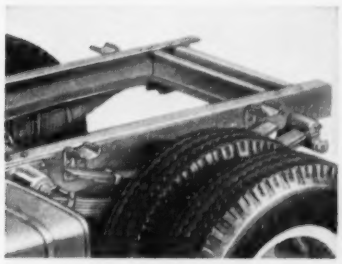
Cabs last longer even in the most severe operations with exclusive 5-point mountings. Quieter, easier riding.



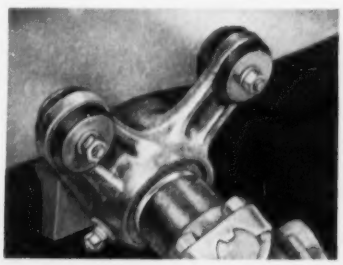
Save time, save money with the most powerful V-8's you can get – to 257 hp. Other power plants up to 356 hp.



Easy to handle even in tightest spots with true geometric steering, cam and roller-mounted steering gears.



Plenty of strength for toughest jobs, biggest loads with frames that have extra rigidity and proper flexibility.



End service costs and maintenance with rubber mounted, sealed and shielded "silent spin" center bearings.

Tough off-highway construction jobs require tandems and all other parts that are built to stand up and take it . . . that will keep operation and maintenance costs 'way down.

And that's the way INTERNATIONALS are built. Cost records prove* this all-important fact – INTERNATIONAL Trucks cost *least* to own.

This superiority doesn't just happen. It's the result of INTERNATIONAL'S rigid policy to build trucks that will do the job better, do it longer and at least cost.

Why not follow the lead of men who know truck costs to the penny, men who have made INTERNATIONAL six-wheelers the sales leader for the past 22 straight years. Make your next truck an INTERNATIONAL.

**Signed statements in our files from fleet operators throughout the U.S., back up this statement.*

cost least to own!

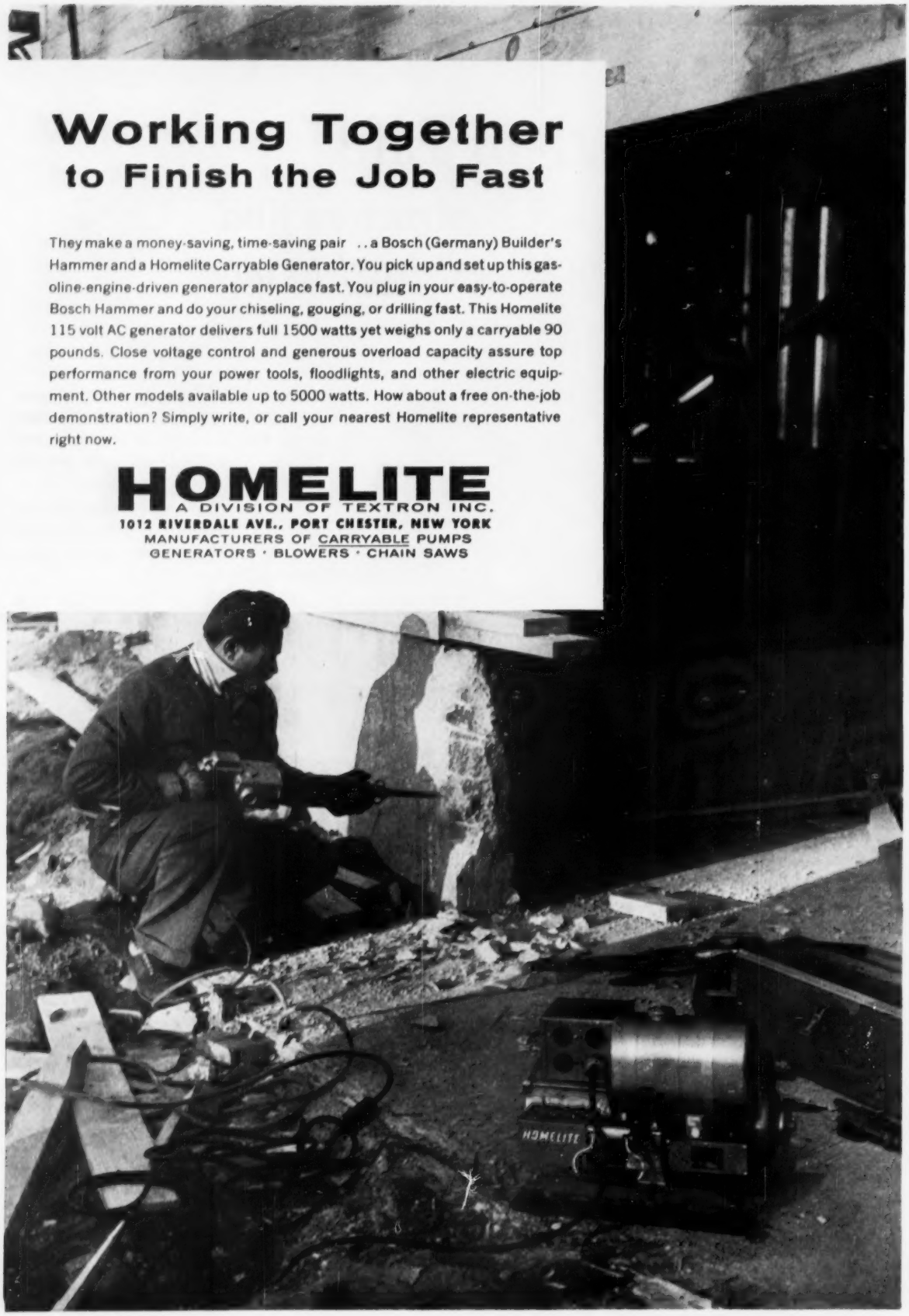
INTERNATIONAL HARVESTER COMPANY, CHICAGO

Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

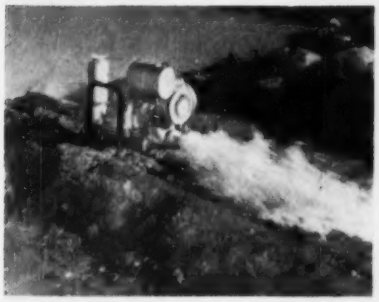
Working Together
to Finish the Job Fast

They make a money-saving, time-saving pair . . a Bosch (Germany) Builder's Hammer and a Homelite Carryable Generator. You pick up and set up this gasoline-engine-driven generator anyplace fast. You plug in your easy-to-operate Bosch Hammer and do your chiseling, gouging, or drilling fast. This Homelite 115 volt AC generator delivers full 1500 watts yet weighs only a carryable 90 pounds. Close voltage control and generous overload capacity assure top performance from your power tools, floodlights, and other electric equipment. Other models available up to 5000 watts. How about a free on-the-job demonstration? Simply write, or call your nearest Homelite representative right now.

HOMELITE
A DIVISION OF TEXTRON INC.
1012 RIVERDALE AVE., PORT CHESTER, NEW YORK
MANUFACTURERS OF CARRYABLE PUMPS
GENERATORS · BLOWERS · CHAIN SAWS

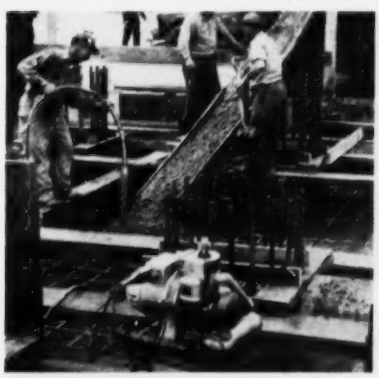


Full Line of Carryable Construction Equipment Now Offered by Homelite



Carryable Diaphragm Pump . . . This self-priming, 120 pound diaphragm pump will handle water in the thickest sand, muck, or mud. Capacity: 5,000 g.p.h. Size: 3". Complete line of centrifugal pumps are also available in sizes from 1½" to 3".

Chain Saws For Every Job . . . Now you can choose from a full line of lightweight, powerful Homelite chain saws. From 3½ to 7 horsepower . . . 19 to 29 pounds. Brush cutting and clearing attachments are available to handle all your cutting jobs.



One-Man Electric Vibrator . . . It takes only one man to place concrete with powerful, Homelite high-cycle or universal electric concrete vibrators. Carryable Homelite generator provides power for high-cycle vibrators *and* 110 volt DC for all universal vibrators, tools and floodlights.

HOMELITE

a division of Textron Inc.

PORT CHESTER, NEW YORK

Job Talk . . .

Portable Job Office Saves Time

Portable modular job offices save time for the Kawneer Co on their big contract at the 14-story First Western Bank Building in Oakland, Calif. Called Porta Houses, these units can be quickly assembled or disassembled and moved from one floor to another. They save time ordinarily lost by employees traveling between a ground floor office to the job site many floors above in the building.

Designed and produced from a 3-ft modular panel of plywood, the sheds are easily expandable. Windows and door panels are also interchangeable and can be moved around the walls in any combination. Dismantled, the shed is a neat stack of white panels and a package of wing nuts and bolts.

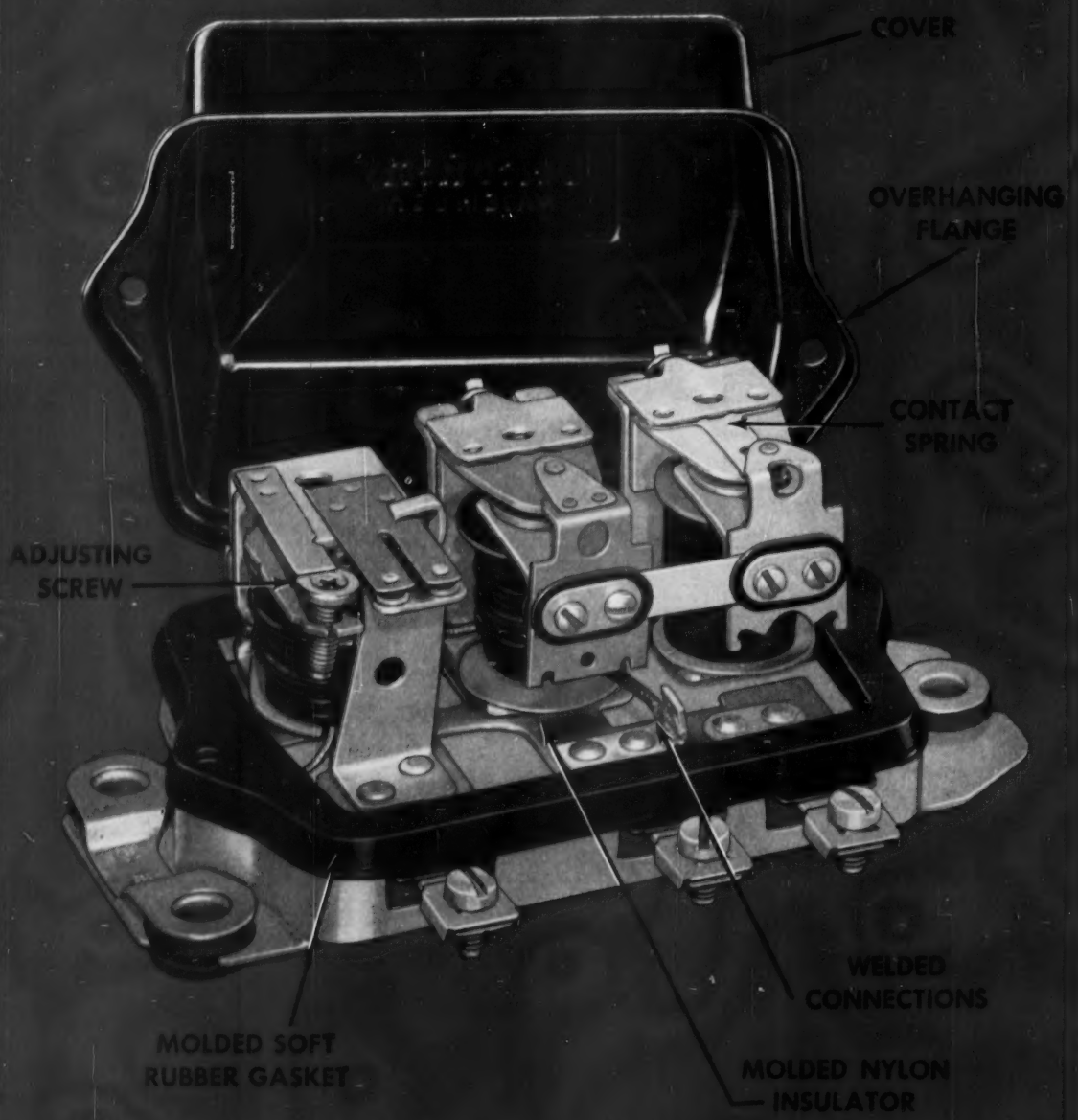
Tractor Ripper Tears Up Pavement

An integral ripper mounted on the rear of a Tournatractor is proving its worth for the Los Angeles Department of Public Works. It moves quickly to many parts of the city, doing a fast job of tearing up old blacktop pavement prior to rebuilding. Designed and built by a local distributor, the unit can handle five staggered teeth. The hydraulic system which raises and lowers the ripper is supplied from the torque converter oil reservoir.

Proof of the rig's success is the fact that it has been operating for three years and has already worn out six shanks and more than 100 teeth.

continued on page 22

PROGRESSIVE ENGINEERING MAKES THE DIFFERENCE



DELCO-REMY WATERPROOF STANDARD REGULATORS IMPROVE FLEET PERFORMANCE

Better electrical performance and greater dependability in any weather are important benefits to fleet operators found in Delco-Remy's waterproof standard generator regulators, now available for general replacement use.

And here are the features that make them the *right* regulators for Delco-Remy equipped cars and trucks in fleet operations.

1. New overhanging one-piece formed-steel cover and mating base shed road splash . . . convenient attaching screws are *outside* the enclosed area. Molded soft rubber gasket seals out harmful oil and water vapors.
2. Integral sleeves of molded nylon insulator form permanent seal around rivets—assure watertight base.
3. New, longer, more flexible armature contact spring on voltage regulator unit assures more positive closing of contact points for smoother operation.
4. Welded electrical connections, and highest quality tungsten and non-tarnishing precious metal contact points, assure minimum resistance, maximum durability.
5. Special fine thread screw-type controls allow easy, highly accurate adjustment of all three units.

Always replace with Delco-Remy waterproof regulators when you service Delco-Remy equipped cars and trucks. These improved regulators, built to highest quality standards by the original equipment manufacturer, are available from your car or truck dealer or the United Motors System.

DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

GM GENERAL MOTORS

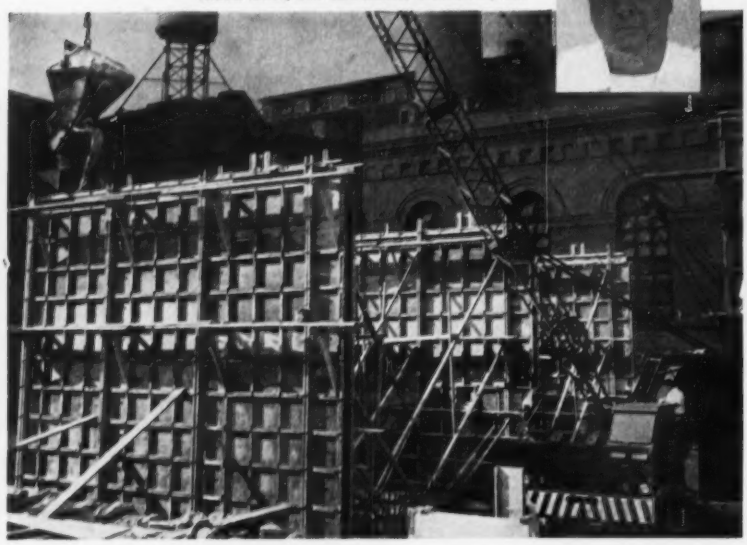
GENERAL MOTORS LEADS THE WAY—STARTING WITH

Delco-Remy

ELECTRICAL SYSTEMS

"The industry has needed an on-the-job form assembly system like this for a long time."

Lawrence H. Johnston, Form Construction Superintendent; Rosoff Bros., Inc. and Amdor Structures, Inc.



Major Concreting Economies Laid to New Richmond Forming Method

"Everything goes faster—setting the forms, pouring, taking the forms down. No doubt about it, the new Richmond Snap-Ty Form System is the modern way to form and pour."

Mr. Johnston has used this prefabricated panel system on several Rosoff-Amdor projects . . . started as soon as Richmond introduced its new booklet of modular panel forms and made available hardware for putting together prefabricated panels easily—right on the job.

Rosoff-Amdor builds the panels on the job—uses them over and over again. For this job, they stacked them horizontally, used the walers vertically. For walls under 15 feet, they use 3,000-lb. Richmond Snap-Tys; for the high walls, 5,000-lb. Snap-Tys. They pour 26-foot-high walls like these in a single day in one continuous pour.

For erection of light foundation wall forms, Richmond Snap-Tys and accessories give you worthwhile savings all along the line. Head washers of Snap-Tys are made of special-strength steel securely held by a clean, well-formed upset at each end to give positive bearing to the Tyholder. This transmits the full strength of the Snap-Ty to the walers and prevents costly form breaks. Break points are set back from the wall face. This permits clean, easy stripping and prevents spalling of the concrete.

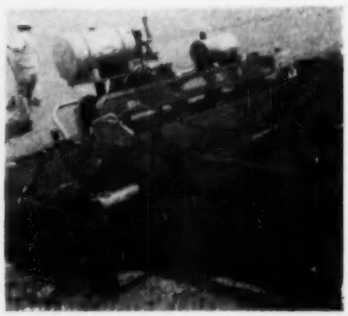
SNAP-TY AND TYHOLDER
2 sizes: 3,000 lbs. and 5,000 lbs. safe load

You, too, can benefit by using this fast, easy method for erecting light foundation walls. See for yourself. Send for your copy of the new Richmond Snap-Ty Form Book containing complete diagrams and forming data. It's free for the asking.

Richmond does not make, rent or sell forms. Richmond sells form-tys and accessories only. The free 20-page booklet tells you how to make and assemble your own forms that can be used over and over. Send for it. Ask, too, for your copy of the new Richmond Handbook, which describes the full line of Richmond-engineered tying devices and accessories. Write to: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N. Y. or 315 South Fourth St., Saint Joseph, Mo.

Some of the new accessories developed by Richmond for easy on-the-job assembly of prefabricated modular form panels.

JOB TALK . . .
continued from page 19



Modified Spreader Paves Sloping Walls

A stripped down Blaw-Knox bituminous paver did a fast job of laying a 4-in. surface on the sloping walls of a new water basin at El Centro Calif. The contractor, Basich Brothers of San Gabriel, stripped the rig to allow full use of the screed arms, screed and tamper assembly.

A separate engine was installed to drive the tamper. The screed assembly was pulled up the slope by a winch installed at the top of the reservoir. Hot-mix was dumped in front of the paver-finisher by a clamshell bucket swung from a truck crane.

Small Tractor Tilts-Up Concrete Wall Panels

A farm tractor may be all you need to handle small-scale tilt-up structures. Engineers at the Texas Agricultural Experiment Station have proved that the method is both fast and economical.

During their experiments with new designs of farm buildings engineers discovered they could tilt up 10x10-ft wall panels with a simple pipe frame, plus the pulling power of a Ford tractor.

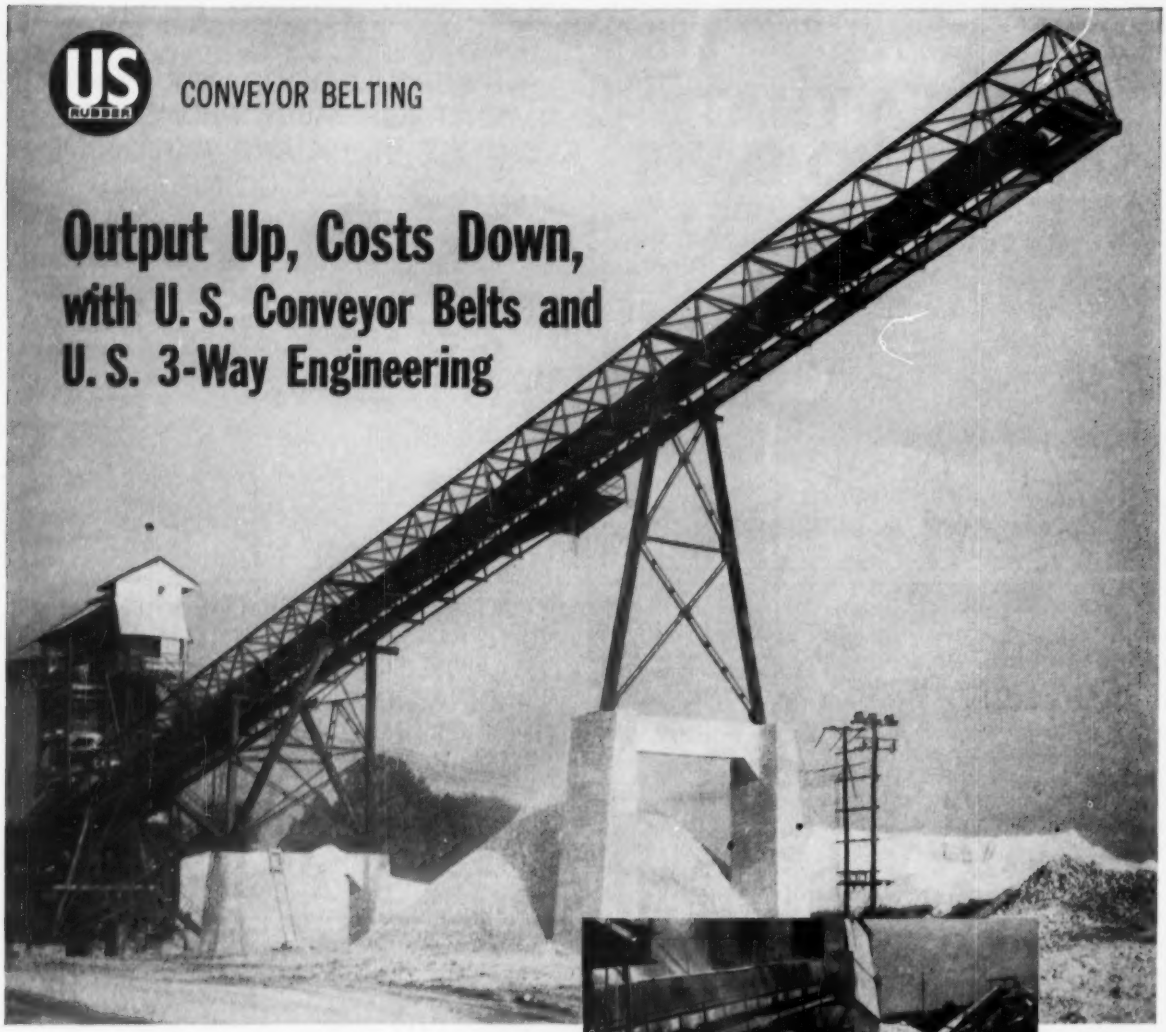
Panels 4 in. thick were cast on a concrete floor and allowed to cure. Then a pyramid-shaped frame of 2-in. pipe was erected on top and fastened to a panel with bolts. Tied to the top two bolts through a chain sling, a cable was carried over the top of the frame and hitched to the rear of the tractor. With the leverage developed by this frame, the 2½-ton panel was tilted in place with a line pull of only 2,000 lb. It was a fast operation.

THE CASE OF
THE IDEA THAT SAVED TWO DAYS
...I'M GOING TO LOSE ABOUT TWO DAYS WHILE WE REBUILD THAT FLYWHEEL CLUTCH!
CATERPILLAR
WHY SHOULD YOU? PUT IN A REBUILT ASSEMBLY FROM OUR EXCHANGE STOCK AND YOU'LL HAVE YOUR TRACTOR GOING THIS AFTERNOON!
CAT
IS IT EXPENSIVE?
NOT AT ALL...
--YOU PAY ONLY FOR THE PARTS AND REPAIR SERVICE TO PUT YOUR CLUTCH IN THE SAME FIRST-CLASS SHAPE AS THE EXCHANGE UNIT. THEN YOUR REBUILT ASSEMBLY GOES INTO OUR EXCHANGE STOCK.
EXCELLENT IDEA! GO AHEAD...
THAT AFTERNOON
SURE AM GLAD I FOUND OUT ABOUT YOUR PARTS ASSEMBLY EXCHANGE PLAN, ART!
WE HAVE OTHER ASSEMBLIES ON HAND TOO, JIM. IT'S AN IDEA THAT REALLY SHORTENS DOWN TIME!
CATERPILLAR*
*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.
CAT CARE FOR LONGER WEAR
LET ME HELP KEEP YOUR CAT* EQUIPMENT ON THE JOB!
Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

US RUBBER

CONVEYOR BELTING

Output Up, Costs Down, with U. S. Conveyor Belts and U. S. 3-Way Engineering



In order to keep up with increased demand, last year a large limestone quarry in the East* installed five U. S. Conveyor Belts, after 29 years of using trucks exclusively.

"It takes less manpower to get the rock out of the hole by the belt system," says the plant engineer, Dick Campbell, "and cost per ton is less than with trucking.

"We investigated 8 other brands before choosing 'U. S.' Belts," he continues. "The main reason for our choice was the 'U. S.' reputation for knowing how to design and build the right belt for the job."

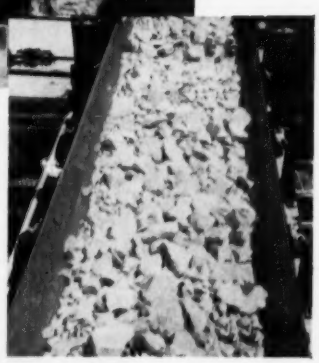
He's referring to U. S. Rubber's famous Three-Way Engineering in which "U. S." engineers work with the engineers of the quarry and the designers of the conveyor system. "We wanted the best and we got it," adds Campbell. "Performance-wise and dollar-wise we are getting the most for our money."

In any question involving materials handling, get in touch with any of the 28 U. S. District Sales Offices, or write us at Rockefeller Center, New York 20, N. Y.

In Canada, Dominion Rubber Co., Ltd.

View of #1 belt entering scalping screen and #3 belt climbing to screening plant. #1 is a 233 foot, 42" 6-ply U. S. Matchless® Style XN. #3 is a 1670 foot, 42", 6-ply U. S. Matchless Style CL.

• • •



Close-up of main stone belt with a capacity of 1200 tons per hour of 7" limestone. Note the excellent troughability of this U. S. Matchless Ustex-Nylon Belt.

*Harry T. Campbell Sons' Corp., Towson, Maryland.

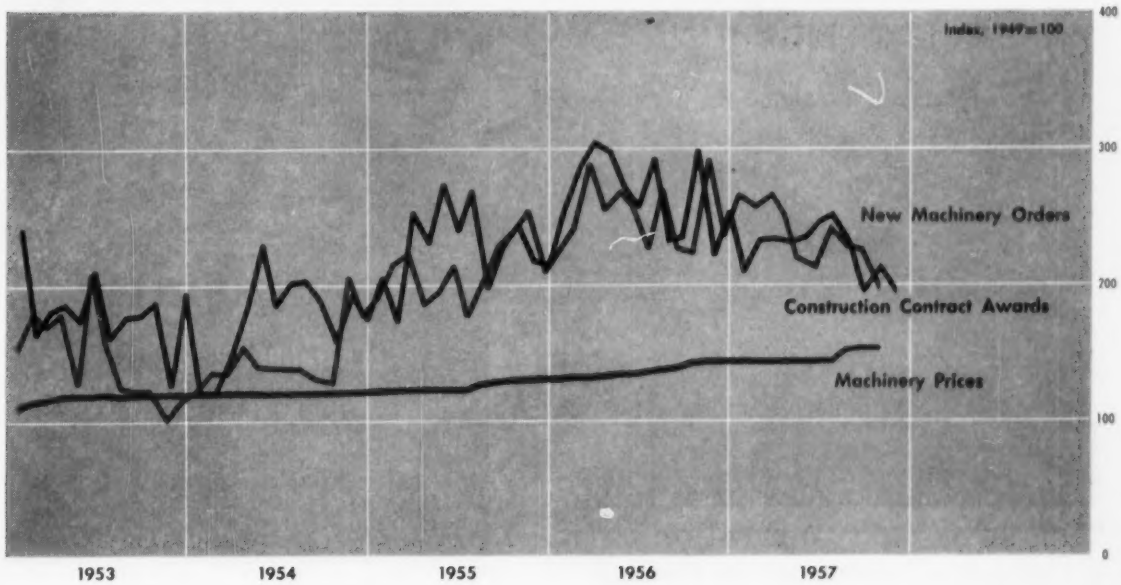
US RUBBER

Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N. Y.

Construction Machinery Price Trends



Price Index

	Oct 1957*	Month Ago	Year Ago	Per Cent Change 1956-57
All Types of Equipment	**162.9**	**162.7‡**	**154.7**	**+ 5.3**
Cranes, Draglines, Shovels	**161.6**	**160.8‡**	**154.3**	**+ 4.7**
Shovel, ½ cu yd	153.7	151.5‡	147.2	+ 4.7
Shovel, ¾ cu yd	164.5	164.5	158.9	+ 3.7
Shovel, 1-1½ cu yd	174.3	174.3‡	165.8	+ 5.1
Shovel, 2 cu yd	148.2	148.2‡	139.2	+ 6.5
Shovel, 3-3½ cu yd	158.3	158.3	151.3	+ 4.6
Shovel, 6 cu yd	179.5	179.5‡	168.6	+ 6.5
Crane, truck mounted	164.2	162.1	161.0	+ 2.0
Bucket, clam shell	152.7	152.7	140.4	+ 8.8
Bucket, dragline	180.8	180.8	171.8	+ 5.2
Crane, tractor mounted	135.1	131.7	120.3	+12.3
Scrapers and Graders	**157.9**	**157.9‡**	**148.9**	**+ 6.0**
Scraper, 4 Wheel, 8-8.4 cu yd	155.0	155.0	145.2	+ 6.7
Scraper, 4 Wheel, 14.4-15.2 cu yd	151.3	151.3	140.6	+ 7.6
Scraper, 2 Wheel (a)	**118.4**	**118.4**	**113.6**	**+ 4.2**
Grader, heavy duty	161.1	161.1‡	154.1	+ 5.8
Grader, light & medium	163.0	163.0‡	152.2	+ 7.1
Tractors	**176.7**	**176.7**	**168.7**	**+ 4.7**
Wheel-type, off-highway (a)	122.1	122.1	118.6	+ 3.0
Crawler type 37.0-45.1 dhp	180.0	180.0	171.9	+ 4.7
60.5-75.0 dhp	183.6	183.6	174.8	+ 5.0
102.0-116.0 dhp	182.4	182.4	172.3	+ 5.9
126.0-155.0 dhp	186.7	186.7	178.0	+ 4.9
Machinery, Tractor Mounted	**160.4**	**160.4**	**150.8**	**+ 6.4**
Dozer, cable control	151.6	151.6	152.1	— 0.3
Dozer, hydraulic control	175.1	175.1	160.0	+ 9.4
Cable, power control unit	147.9	147.9	136.4	+ 8.4
Loader, shovel type	151.8	151.8	143.5	+ 5.8
Specialized Machinery	**147.0**	**147.0‡**	**140.1**	**+ 4.9**
Ditcher	154.1	154.1	147.1	+ 4.8
Roller, tandem	181.7	181.7	172.8	+ 5.2
Roller, 3 wheels	161.6	161.6	148.6	+ 8.7
Ripper and rooter	143.3	143.3	132.8	+ 7.9
Dewatering pump, 10M gph.	110.1	110.1‡	107.2	+ 2.7
Dewatering pump, 90M gph.	135.6	135.6‡	128.5	+ 5.5
Portable Air Compressors	**159.1**	**159.1‡**	**138.5**	**+14.9**
Contractors Air Tools	**164.3**	**164.3**	**150.0**	**+ 9.5**
Mixers, Pavers, Spreaders	**145.3**	**145.3‡**	**139.4**	**+ 4.2**
Mixer, portable, 6 cu ft	147.9	147.9‡	140.7	+ 5.1
Mixer, portable, 11 cu ft	155.4	155.4‡	153.8	+ 1.0
Mixer, portable, 16 cu ft	159.6	159.6‡	152.0	+ 5.0
Mixer, truck, 4½ cu yd	122.1	122.1	116.8	+ 4.5
Mixer, paving, 34 cu ft	174.6	174.6	157.1	+11.1
Concrete finisher	173.0	173.0	166.3	+ 4.0
Bituminous distributor	115.9	115.9	112.3	+ 3.2
Bituminous spreader	160.3	160.3	149.9	+ 6.9
Bituminous paver	155.3	155.3‡	149.5	+ 3.9

* Preliminary ‡ Revised (a) Jan, '55 = 100
BLS Primary Market Price Indexes, U.S. Department of Labor, 1947-49 = 100

Prices Hold Stable, But New Orders Sag

CONSTRUCTION MACHINERY prices were steady in October except for small scattered increases for some types of cranes and shovels.

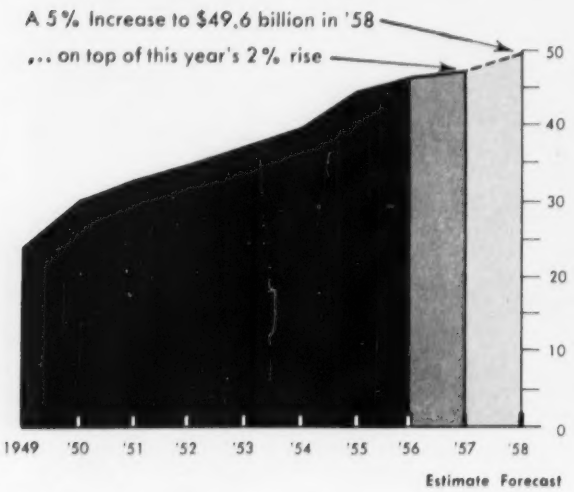
The October increases nudged the Bureau of Labor Statistics price index of manufacturers prices up a slight 0.1% over the September value. But this put the index at a new all-time high of 162.9 (based on 1947-49 = 100) and 5.3% above year ago prices.

BLS also made significant upward revisions in its September price index. The major increases were: bituminous pavers, 3.7%; compressors, 210 cfm, 3.1%; dewatering pumps, 10,000 gph, 1.9%; and small portable mixers, of 6, 11, and 16 cu ft capacity, up 1.6% to 1.8% and 1.6%, respectively.

New orders for construction machinery dropped in October to the lowest monthly rate in more than two years. The new orders index declined to 197 (based on 1949=100) according to the McGraw-Hill Department of Economics. This was the third consecutive monthly decline.

Sagging orders for machines reflect a drop in heavy construction contracts. The contract award index fell from its 1957 high of 253 in July to 199 in September. Though construction contracts rallied in October, November awards skidded to an index value of 196—the lowest for any month to date this year. However, awards still are within 10% of the November high set in 1956, and they represent the third highest volume on record for the month.

NEW CONSTRUCTION PUT IN PLACE:



U.S. Departments of Commerce and Labor joint estimates

1958 INCREASES of . . .

- 14% in Highways
- 11% in Hospitals and Institutional †
- 9% in Public Administration & Service Buildings †
- 8% in Housing †
- 6% in Schools †
- 6% in Public Utilities
- 5% in Commercial Building

. . . to offset DROPS of . . .

- 4% in Sewers & Waste Disposal
- 7% in Waterworks
- 8% in Industrial Building †
- 14% in Military Construction

† Public and Private projects

1958 — Another Record Year

NEW CONSTRUCTION going into place should increase by 5% next year to a new high of $49.6 billion, according to the joint estimate of the Departments of Commerce and Labor. This is more than double the estimated 2% rise in 1957.

Perhaps more significant is the forecast that the physical volume of new work will rise for the first time since 1955. Next year, it is forecast to hit a level second only to the 1955 record. This indicates a near-record demand for many materials and a fast operating rate for contractors.

Highway construction alone will account for 25% of the total rise in new construction next year. Interstate projects will help push total highway work up 14% to a record $5.5 billion. A 6% increase in school building and a 68% jump in public housing (due to Capehart projects) will also contribute to a 7% increase projected for total public work construction.

Private construction is seen rising 4% with higher outlays coming for housing, commercial building, and public utilities.

continued on page 28

FORECAST: New Construction Put in Place—1958

By U.S. Departments of Commerce and Labor, in millions of dollars

Type of Construction	Actual 1956	Estimate 1957	Forecast 1958	% Change '56-'57	% Change '57-'58
Total New Construction	**$46,060**	**$47,200**	**$49,600**	**+ 2**	**+ 5**
Private Construction	**33,242**	**33,300**	**34,700**	**+0.2**	**+ 4**
Residential (nonfarm)	17,632	16,530	17,575	— 6	+ 6
New dwelling units	13,490	12,125	12,800	— 10	+ 6
Alterations, nonhousekeeping	4,142	4,405	4,775	+ 6	+ 8
Nonresidential buildings	8,817	9,155	9,150	+ 4	—0.1
Industrial	3,084	3,170	2,875	+ 3	— 9
Commercial	3,631	3,585	3,775	— 1	+ 5
Other nonresidential buildings	2,102	2,400	2,500	+ 14	+ 4
Religious	768	870	870	+ 13	0
Educational	536	525	540	— 2	+ 3
Hospital and institutional	328	505	590	+ 54	+ 17
Social miscellaneous	470	500	500	+ 6	0
Farm construction	1,560	1,600	1,600	+ 3	0
Public utilities	5,113	5,825	6,150	+ 14	+ 6
Railroad	427	450	400	+ 5	— 11
Telephone and telegraph	1,066	1,075	1,000	+ 1	— 7
Electric and gas	3,245	3,900	4,350	+ 20	+ 12
Other public utilities	375	400	400	+ 7	0
All other private	120	190	225	+ 58	+ 18
Public Construction	**12,818**	**13,900**	**14,900**	**+ 8**	**+ 7**
Residential buildings	292	505	850	+ 73	+ 68
Nonresidential buildings	4,072	4,470	4,710	+ 10	+ 5
Industrial	453	455	450	+0.4	— 1
Educational	2,549	2,830	3,000	+ 11	+ 6
Hospital and institutional	298	330	340	+ 11	+ 3
Administrative, etc.	772	855	920	+ 11	+ 8
Military facilities	1,395	1,275	1,100	— 9	— 14
Highways	4,470	4,825	5,500	+ 8	+ 14
Sewer systems	701	785	750	+ 12	— 4
Water systems	574	560	520	— 2	— 7
Public service enterprises	384	395	400	+ 3	+ 1
Conservation and development	826	965	950	+ 17	— 2
All other public	104	120	120	+ 15	0

JOB REPORT FROM GOLDSBORO, N. C.

on the new CAT* DW15 (Series E)-No. 428 LOWBOWL Scraper

Whenever a new machine is introduced, this question comes up: "What'll it do on a job?" Reports from actual jobs in different sections of the country show there's a definite answer for you on the new Caterpillar DW15 (Series E)-No. 428 LOWBOWL Scraper. Compared with competitive units of similar capacity, this new earthmover heads the pack with high production.

Here are facts and figures from a contract on U. S. Highway 117 near Goldsboro, N. C. The contract, handled by S. T. Wooten Construction Co., Stantonsbury, involved moving about 3,000,000 cu. yd. of material in a section 2.3 miles long. The material was coarse, moist sand (70%) and clay (30%). Hauling loads of 14.1 bank cu. yd., the DW15 (Series E) unit averaged 7.02 round trips an hour on a 3,600-foot cycle. Details are shown in the box to the right.

From every angle, the new DW15 is designed for high production at low cost per yard. Its Caterpillar Engine packs 200 HP (maximum output capacity). With speeds up to 37.2 MPH plus the stability of four wheels, it delivers fast round-trip hauls with greater safety than two-wheel rigs. Its new wide-section 26.5 x 25 tires provide maximum flotation. And the new No. 428 LOWBOWL Scraper (13 cu. yd. struck, 18 cu. yd. heaped), provides a faster loading rate clear to the end of the loading cycle.

For comparative cost-of-operation figures on other actual jobs, see your Caterpillar Dealer. He's a source of reliable information. Ask him to show you *proof* that the new DW15 (Series E)-No. 428 can pay off for you! Name the date—he'll demonstrate!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

JOB DATA ON DW15 (SERIES E)-NO. 428*

Material: Coarse moist sand (70%) and clay (30%)	
Round-trip distance	**3,600'**
Average load time (min.)	**1.06**
Average haul time	**3.28**
Average turn and dump time	**.61**
Average return time	**3.61**
Average cycle time (incl. delays)	**8.56**
Average trips per hour	**7.02**
Bank cu. yd. per trip	**14.1**
Average hourly production (bank cu. yd.)	**99**

**The unit was push-loaded by a D8*

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

ONE GOAL: To concentrate our capabilities, resources and experience on the design, manufacture, distribution and service of job-tested heavy equipment.

THE LATEST, MOST COMPLETE INFORMATION ON THE NEW HIGHWAY PROGRAM — FREE

Here in one booklet is *all* the latest information on the new highway program. Find out how, where and when the money will be spent; standards for the new freeways, final routes of the Interstate System. Everything you need to know to share in the greatest construction job in history.

DEPT. CME-10, Caterpillar Tractor Co. Peoria, Ill.

Please send me immediately _____ copies of "The Road Ahead."

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

CONSTRUCTION BUSINESS..

continued from page 26

Few Soft Spots

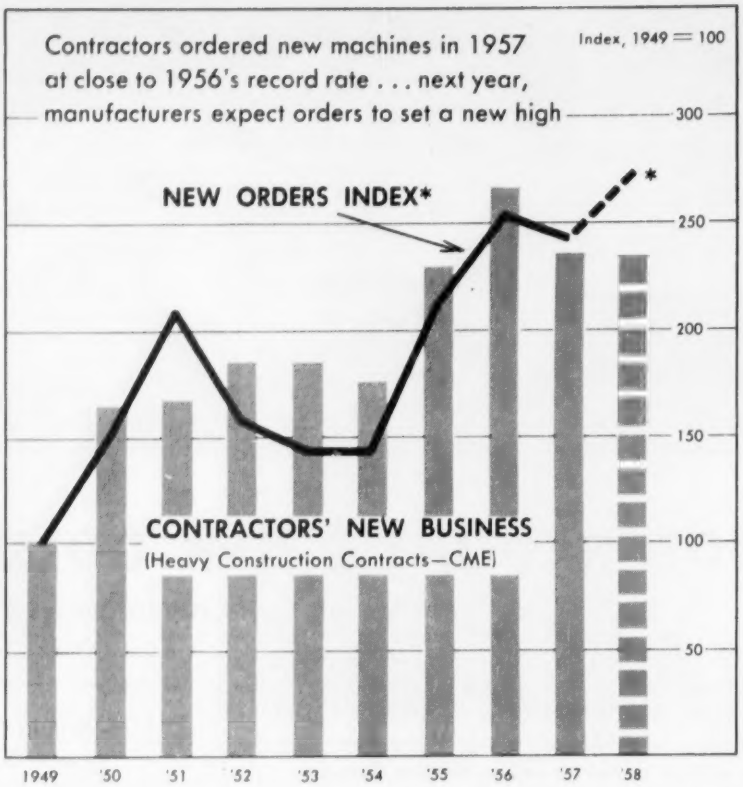
Some types of work will decline next year, though these will be offset by the increases mentioned above.

Sharpest drop is coming in military construction, down 14% for a two-year decline of 21%. Sewage disposal is forecast down 4% and waterworks 7%. But the waterworks forecast may be reversed — constracts reported by Construction Methods are setting a new high in 1957.

Industrial building is the only major weak spot in private work, with a 9% decline predicted to follow this year's 3% rise to a record high.

Contractors Will Spend More for Machines in 1958

Contractors ordered almost as much new machinery this year as in the record year, 1956. They maintained purchases of new rigs at a rate only 3% under last year even though new business dropped 15% as measured by



*McGraw-Hill Department of Economics. 1957 includes forecast for fourth quarter; 1958 based on forecast for first three quarters

TRUCK ENGINE DRIVE Or INDEPENDENTLY POWERED . . .

TRANSCRETES make you more money!

All Transcretes have the same CMC job-tested, time proven BIG VALUE features that guarantee FASTER charging—MORE THORO mixing—QUICKER discharge. These include: (1) Hopper that "Swings In" for charging, "Swings Out" for discharge. (2) Trouble-free Floating Drive.

Sizes to 7-yard mixing capacity. Write for details.

Take this first step to BIGGER READY-MIX PROFITS! Write for

2 FREE Transcrete Bulletins

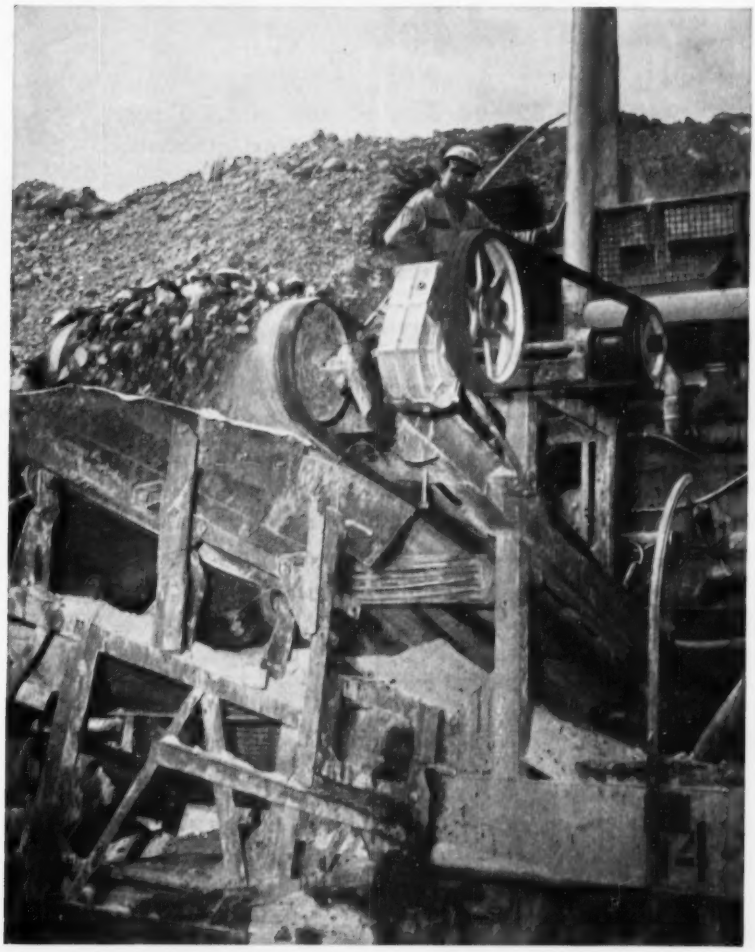
CONSTRUCTION MACHINERY CO., Waterloo, Iowa

ENGINEER'S FIELD REPORT

PRODUCT CHEVRON STARTING FLUID

FIRM GIBBONS & REED CO. Salt Lake City, Utah

Assures fast starts every time—even at -30°



Using Chevron Starting Fluid for its trucks, construction equipment and stationary engines, Gibbons & Reed Co. gets the fast, sure starts necessary to keep its men and equipment working in severe winter weather. Firm's master mechanic, Marv Carlisle, (above) says, "It kicks over the Cummins HR-600 on this crushing unit in a matter of seconds—even at 30° below zero! It saves batteries, gets our equipment started when we need it. Chevron Starting Fluid is a real necessity around a construction job in cold weather. We wouldn't be without it!"

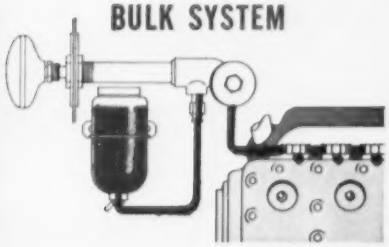
Gibbons & Reed Co., a large general contractor specializing in highway and airport runway construction, tunnel building and general paving work, has used Chevron Starting Fluid since 1948—currently uses it on 300 engines. With jobs throughout the Western States, frequently with completion date penalty clauses, firm finds it indispensable five months of the year. For only a few cents per start, Chevron Starting Fluid helps keep jobs on schedule, and removes risk of idle men and equipment when engines fail to start promptly.

CHEVRON STARTING FLUID

TRADEMARKS "CHEVRON" AND CHEVRON DESIGN REG. U.S. PAT. OFF.

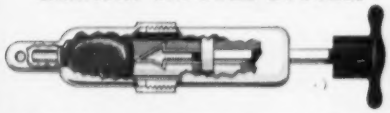
How to apply Chevron Starting Fluid

BULK SYSTEM



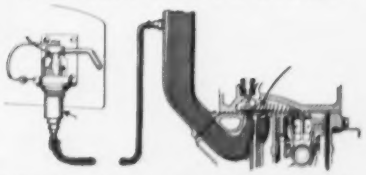
- Pour Chevron Starting Fluid from pint can into bulk applicator mounted near driver...then pump any desired quantity into air intake.
- Fluid gives fast starts in diesel and gasoline engines.

GELATIN CAPSULE SYSTEM



- 7 cc and 17 cc capsules of Chevron Starting Fluid are placed in a vertically mounted panel applicator...fluid is pumped into intake manifold.
- Volatile Chevron Starting Fluid atomizes at temperatures as low as -65°F. Pressure or weakest spark from engine fires mixture.

PRESSURE PRIMER SYSTEM



- Simple discharger mounted on instrument panel punctures small, fireproof, pressurized steel cartridges containing 9.9 cc starting fluid.
- Fluid injected under pressure sprays into combustion chamber, results in immediate starts. Contains additives to inhibit cylinder wear.

For More Information or the name of your nearest distributor, write or call any of the companies listed.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20
THE CALIFORNIA OIL COMPANY, Perth Amboy, New Jersey

STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA COMPANY, Denver 1, Colorado

EUCLID "TWINS"

whip tough conditions on Sugden & Sivier's 1,700,000 yd. road job

Two TS-24 "Eucs" move 320 yards per hour on 3300′ haul with 3% adverse grade and 16 to 20% rolling resistance

On a 1,700,000 yd. highway relocation job near Jackson, Michigan, Sugden & Sivier encountered the toughest dirt conditions in their experience. Yet, they're ahead of the earthmoving schedule—*chiefly because of the performance of their six Euclid Twin-Power Scrapers* (two 24-yd. struck capacity and four with 18 yd. struck capacity).

Water-logged sand pockets in the clay base made loading and hauling slow and difficult. In spite of the unfavorable conditions, the all-wheel drive "Twins" bulled their way through on wet, spongy, rutted haul roads . . . and averaged 1500-1600 yards per unit per 10-hour shift.

On all kinds of jobs, in every kind of dirt, on all lengths of hauls, Euclid "Twins" are outproducing other scrapers by a wide margin—the all important profit margin. More and more successful bidders are figuring their estimates on "Twin" productive capacity. See your Euclid dealer soon for additional details and proof that ***Euclids are your best investment.***

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Charles T. Sugden says,
"Euclid manufactures the best earthmoving equipment available today."

"Downtime is negligible on the Twins"

That's the opinion of Mr. Sugden, a 34-year veteran in earthmoving. And, there's good reason for the high availability of "Eucs". Strength and durability are designed in and built in to every unit as a result of over 25 years of experience in building heavy construction equipment. Major components are job-proved over many years—and they're easily accessible for quick service or replacement to save downtime.

Independent hydraulic control of apron and ejector on the big "Twin" assures instant response to simple control levers . . . permits fast, controlled spreading of the load . . . eliminates expense and downtime caused by cable breakage. Interchangeable, reversible four-section cutting edge can be adjusted for best loading in various materials.

With 300 h.p. engine in the tractor and 218 h.p. behind the bowl, separate Torqmatic Drive and NoSpin differential for each drive axle, the TS-24 "Twin" cuts cycle times even under the most adverse job conditions.

Euclid "Twins" are moving the cheapest dirt!

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

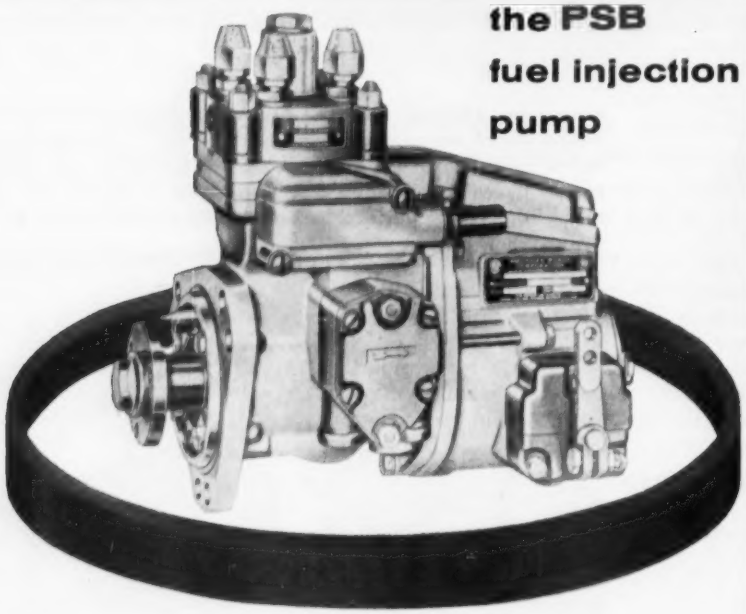
heavy construction contracts reported by Construction Methods.

Next year, they will increase their orders, according to the forecasts of a sample of construction machinery manufacturers reporting to the McGraw-Hill Department of Economics. These firms expect contractors to up their orders in the first nine months of 1958 to 13% more than in the 1957 period and 9% more than 1956's record.

But if these machinery makers have counted too heavily on new business resulting from the Interstate Highway program, their 1958 forecast may run into the same trouble as their early 1957 forecast. Interstate highway contracts this year failed to spur machinery purchases enough to offset the drop in demand caused by sagging contracts for private heavy construction.

We have forecast heavy construction contracts in 1958 to total about the same as in 1957. If this prediction proves accurate, there may be no increase in contractors' purchases of new machines next year because the orders trend follows closely the trend in heavy construction awards.

Disappointing sales and mounting inventories in the yards of some manufacturers didn't forestall widespread price increases this year. But 1956 may tell a different story. Competition for sales will probably increase sharply. Moreover, any steel price rise will likely be much less than the one in 1957. Chances look good for relatively stable prices next year—in sharp contrast to big increases in 1955, 1956, and 1957.



the PSB fuel injection pump

TOP VALUE

. . . *from outstanding performance*—proven by the unexcelled service records of the more than 140,000 American Bosch PSB pumps now in use.

. . . *from outstanding design*—featuring simple construction with fewer parts . . . positive governor control . . . precise fuel metering and distribution . . . replaceable hydraulic head for fast field servicing.

. . . *from unmatched operating economy*—efficient design and careful manufacture assure top diesel engine performance . . . long, trouble-free operation with minimum maintenance and repair.

. . . *from low-cost repair service*—by factory-trained experts at Authorized American Bosch Service Stations . . . nearly 200 in North America, Hawaii, and Puerto Rico . . . all equipped with special tools and test equipment, and stocked with genuine American Bosch replacement parts.

4847

AMERICAN BOSCH
DIVISION
AMERICAN BOSCH ARMA
CORPORATION
SPRINGFIELD 7, MASS.

SOME BIG CONTRACT AWARDS OF THE MONTH

Gilbane Construction Co., 90 Calverly St., Providence, R. I. Shopping center, hotel, 2 office buildings, garage, etc., on 15-acre tract on both sides of North Ave., New Rochelle, N.Y. New Rochelle Development Corp., 302 North Ave., New Rochelle, N.Y. $50,000,000.

Haas & Haynie, 275 Pine St., San Francisco 4, Calif. and **R. P. Darnsworth & Co.,** 1515 S. Salcedo St., Box 850, New Orleans, La. Paper plant, St. Francisville, La. for St. Francisville Paper Co. (Crown Zellerbach Corp. & Time, Inc.) St. Francisville, La. $31,000,000.

Stone & Webster Eng. Co., 49 Federal St., Boston, Mass. Design and construct Elrama steam electric generating station, near Clairton, Pa. Duquesne Light Co., 435 6th Ave., Pittsburgh 19, Pa. $30,000,000.

J. A. Jones Constr. Co. 209 W. 4th, Charlotte, N.C. Plant to produce Creslan (a textile fibre), Pensacola, Fla. American Cyanamid Co., 30 Rockefeller Plaza, New York, N.Y. $25,000,000.

Mills & Jones, 2260 Fourth Ave. S., St. Petersburg, Fla. General contract brewery in Industrial Park, Temple Terrace, Tampa, Fla. Anheuser-Bush, Inc., 721 Pastalozzi St., St. Louis 18, Mo. $20,000,000.

JUST OUT!

All-new '58

DODGE *PowerGiants*

4-WAY LEADERS OF THE LOW-PRICED 3

Now—for the first time in truck history—one make leads the low-priced three *all four ways!* And that make is DODGE—all new for 1958!

From the future comes Dodge styling — handsome, sweeping, prestige-winning lines, richly trimmed in sparkling chrome.

From 40 years of truck experience comes remarkable engineering advances . . . outstanding performance, load capacities and economy.

See these great new trucks soon. And be *sure* to get your Dodge dealer's special 40th-anniversary deal before you buy any other make!

1 **FIRST IN PAYLOAD!** Advanced construction gives extra strength *without* extra weight, lets you haul up to ⅓ more, cut down on trips.

2 **FIRST IN POWER!** New 204- to 234-hp. *Power Giant* V-8's! Extra power cuts trip time, lets you pass more safely, reduces engine strain.

3 **FIRST IN ECONOMY!** Most advanced of all V-8 truck engines. Exclusive Power-Dome combustion increases gas mileage, cuts upkeep costs.

4 **FIRST IN STYLING!** All-new design! Deluxe chrome grille and trim . . . modern dual headlights . . . future-inspired lines . . . smart new colors.

TURN PAGE FOR FULL-LINE STORY →

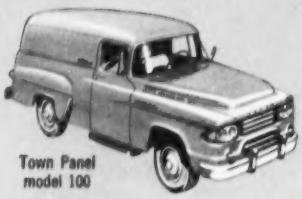
There's a

'58 DODGE *PowerGiant*

for every job . . . for every business . . . for every pocketbook

Low-tonnage models

Pick-up
model 100



Town Panel
model 100

Town Wagon
model 100

Forward-Control
model P300

Medium-tonnage models

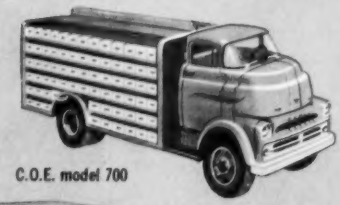
Model 400
Van Body

Model 500—Stake

Four-Wheel-Drive
W500
Chassis

Model 600
Tractor

Heavy-duty models



C.O.E. model 700

Model 900—
Tractor

Model T800—
Mixer Body

Model T900—
Dump Body

CONDENSED SPECIFICATIONS

CONVENTIONAL MODELS

G.V.W. Range
4,250 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

4-WHEEL-DRIVE MODELS

G.V.W. Range
5,100 lbs. to 10,000 lbs.
Engines
113- 120- 125-hp. 6-cyl.
204-hp. V-8
204-hp. V-8 (Heavy-Duty)

FORWARD-CONTROL MODELS

G.V.W. Range
6,000 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range—11,000 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyl.
204- (H.D.) 207-hp. V-8's

C.O.E. MODELS

G.V.W. Range—15,000 lbs. to 22,000 lbs.
Engines—204- (H.D.) 207- 218-hp. V-8's

4-WHEEL-DRIVE MODELS

G.V.W. Range—15,000 lbs. to 20,000 lbs.
Engines—130-hp. 6-cylinder
204- (H.D.) 207-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range—10,500 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyls.
204- (H.D.) 207-hp. V-8's

FORWARD-CONTROL MODELS

G.V.W. Range—7,500 lbs. to 15,000 lbs.
Engines—120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range
18,500 lbs. to 30,000 lbs.
Engines
218- 224- 234-hp. V-8's

C.O.E. MODELS

G.V.W. Range
18,500 lbs. to 25,000 lbs.
Engines
218-hp. V-8

TANDEM MODELS

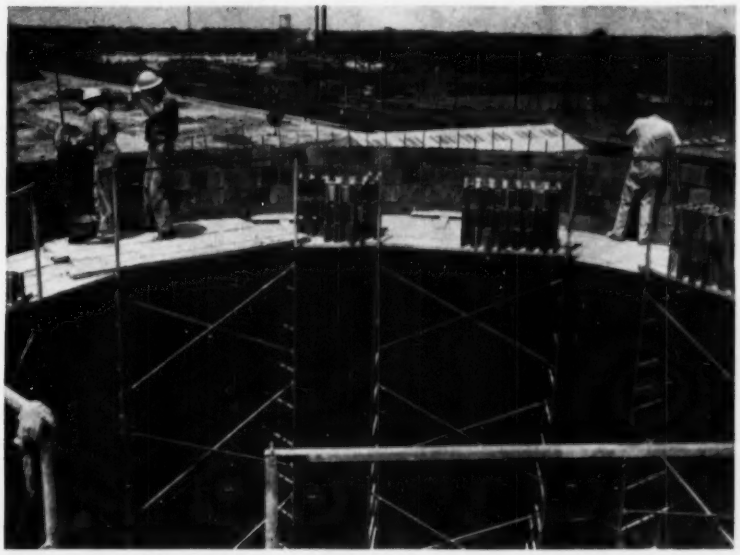
G.V.W. Range
26,000 lbs. to 46,000 lbs.
Engines
218- 224- 234-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range
17,500 to 23,000 lbs.
Engines
218-hp. V-8

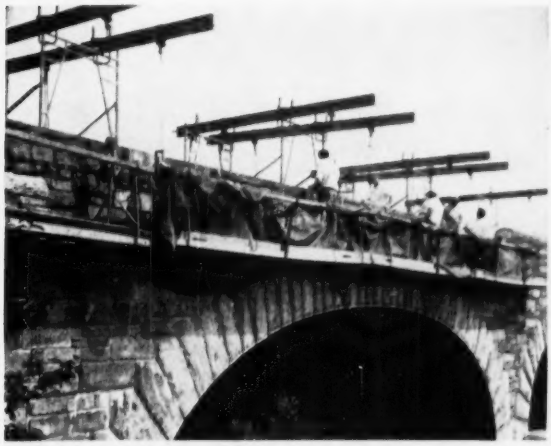
(Advertisement)

Scaffolding Methods . . . by Patent Scaffolding Co.

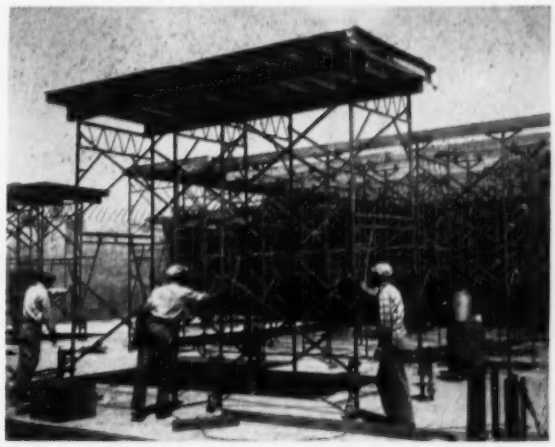


SAFE, 80'-HIGH MASONS PLATFORMS — To provide safe, steady, easily-erected platforms for masonry work on six 35'-diameter, 80'-high silos for the Masonite Corp. plant in Laurel, Miss., contractors, Stebbins Engineering Co., use "Trouble Saver"® Scaffolding. 440 5'-wide mason frames support a material runway between silos and 1530 4'6"-wide "Trouble Saver" mason frames are erected inside for laying tile. Additional scaffolding units are quickly added as the job progresses, keeping masons and material always within easy reach of the work.

Note steel guard rail at top in this photo for extra safety. Prefab frame and diagonal brace components of "Trouble Saver" Sectional Steel Scaffolding assemble quickly to exact height and length requirements.



HANG TO BRIDGE REPAIRS OVER TRAFFIC — 4 "Gold Medal"® Junior Safety Swinging Scaffolds provide quick, safe platforms for repairs and tuckpointing on a bridge over Grand Central Parkway, L. I., N. Y. I-beams, secured to counter-weighed benches erected from "Trouble Saver" Scaffolding frames, support scaffolds. These "Gold Medal" Scaffolds are suspended from $5/16$", galvanized steel wire rope, and are raised and lowered by light-duty Machines, operating with a direct ratchet for speedy raising, and worm and gear for safe, smooth lowering. Haskel Construction Co., contractor.



SHORING ROLLS FROM POUR TO POUR — By using rolling "Trouble Saver" Shoring, Binkele Construction Corp. moves the shoring with forming lumber in place from one pour to the next on the new Sears Roebuck & Co. store, Lancaster, Pa. 1000 frames of "Trouble Saver" Shoring are in use and help speed concrete work by saving valuable time in replacing and restripping of forms. For movement, shoring is lowered by adjustable legs. Then 8" caster attachments are secured to legs. Turning handle atop casters raises shoring for rolling to new pour positions.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

GOLD MEDAL LADDERS SCAFFOLDING

THE PATENT SCAFFOLDING CO., Inc.

®

38-12 12th Street, Dept. CM&E, Long Island City 1, N. Y.

West Coast: 6931 Stanford Ave., Los Angeles 1, Calif. • In Canada: 355 Dufferin St., Toronto

Branches in all Principal Cities

ALL NEW . . . from exclusive swinging outriggers to the longest, strongest boom in its class . . . it's the American 500 Series Truck Crane now in production! Revolutionary new features put this heavy duty 40-ton capacity crane far ahead in on-the-job versatility, performance and operating efficiency.

NEW AMERICAN 40-TON TRUCK CRANE STRIPS QUICKLY FOR HIGHWAY TRAVEL

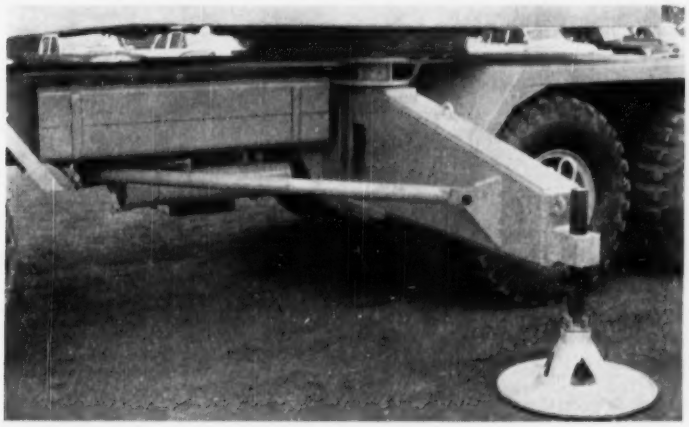
When you examine the all-new 500 Series, you'll find it offers an unbeatable combination of strength, low overall height, lighter travel weight and the greatest lifting capacity in its field! Using its own power, you can strip this machine for highway travel in amazingly short time.

Mechanically, you'll find that the 500 Series offers such important advantages as graduated air controls . . . new brake and clutch designs . . . liberal use of anti-friction bearings—in swing rollers as well as deck machinery . . . individually removable shaft assemblies . . . new design machinery base featuring straight-through girders and integrally welded roller supports that offer maximum strength, minimum weight and accurate roller alignment . . . engine controlled load lowering . . . engine controlled boom lowering . . . retractable high gantry . . . plus countless job-tested features that cut operating costs, boost machine efficiency and keep your jobs on schedule month after month. Your American Distributor will bring you detailed information, all the facts on this important addition to the big American line of rugged Crawler and Truck Cranes that offer you capacities starting at ½-yard, 12½ tons! Call him soon.

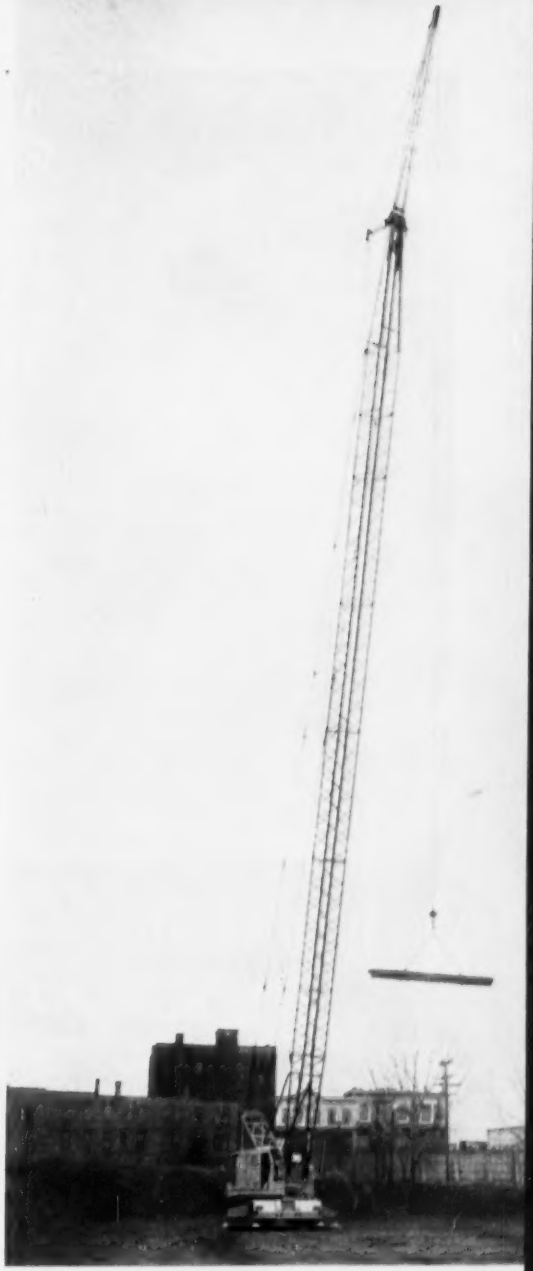
(Advertisement)

STRIPPED FOR TRAVEL (above) the American 500 Series—on a 10 foot, 2-inch wide carrier—weighs only 62,200 pounds and is only 12 feet, 5½ inches high. Counterweight, outriggers and gantry are raised and lowered by the crane's engine. Pin connections speed boom section removal—replacement. Travel weight is spread over four axles of the powerful, mobile carrier that's also available in a 9-foot width.

AMERICAN'S EXCLUSIVE outrigger system sets up quickly . . . pull a pin, swing the outrigger into place and secure! Screw jacks, with large suspended aluminum floats give you fast, safe blocking. By reducing frame stresses, this revolutionary concept in outrigger design results in a lighter weight carrier—allows use of stronger machinery deck equipment for heavy duty work. It provides a stable base for handling the longest boom, the greatest loads in its class. Only the 500 Series can swing rated loads safely through a full 360° arc!

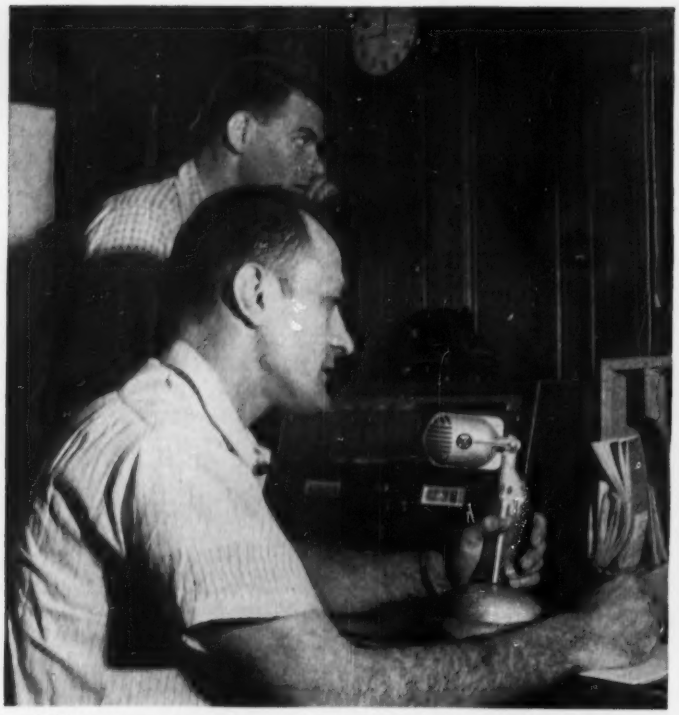


NEW AIR CONTROLS, developed especially for American Hoist, give positive clutch control—from smooth, easy engagement to full pressure with finger tip effort. The mechanical "feel" remains, but air does the work. Fast acting, highly responsive air controls give you precise load handling and consistently higher production rates hour after hour! Learn all the facts—complete specifications on this newest American—call your nearby Distributor.



CAPABLE OF PICKING UP 150 feet of boom and 30 feet of jib—180 feet in all—*without help*, the new American Truck Crane demonstrates its amazing stability, balance and power! The rugged boom, strongest in its field, is 48 inches square—has steel pipe lacing and deep section chord angles. Only the 500 Series can handle so much boom—offer such great lifting capacities in its class. Controlled load lowering is standard equipment—controlled boom lowering uses sprag type over-running clutch for smooth engine governed boom lowering. A single air control gives the operator smooth boom operation with any length boom, at any radius.

AMERICAN HOIST
and Derrick Company
St. Paul 7, Minnesota



9:01 A.M. WELLPOINT GENERATOR AT WOODMERE IS REPORTED BURNED.

9:02 A.M. FIELD REPAIRMAN IS ALERTED.

DOWNTIME'S BEEN CUT AT HENDRICKSON BROS.

THANKS TO RCA 2-WAY RADIO

Whether it's replacing a burned-out pump generator, repairing a tire, or resplicing a cable, the radio-equipped maintenance department of Hendrickson Bros., Inc., Valley Stream, L.I., swings into action FAST! Field repair trucks fitted with replacement parts, tools, and 2-way radio tour the jobs continually. They're in touch with the office at all times and can talk to one another on the road. If it's a shop job that's needed, the equipment can be towed in for prompt repair. "Fast, efficient, effective," is the way they describe their operation with radio.

9:15 A.M. SPARE GENERATOR IS ON THE JOB.

RCA 2-WAY RADIO FOR CONSTRUCTION USE is specially designed to "take it," with sturdy drawer-type case design, elliptical loud speaker providing 3 times more acoustical power than the ordinary type, greater range and better signal at any distance. Built-in 6-12-volt convertibility. New Improved "Red Head" microphone, transistorized or regular, now available. Mail coupon.

Radio Corporation of America
Communications Products
Dept. A-203, Building 15-1, Camden, N. J.

- ☐ Please send me complete information on RCA 2-Way Radio for use in the construction business.
- ☐ Have RCA Communications Specialist make a FREE radio survey of my operation.

Name_____

Company_____

Address_____

City_____ Zone_____ State_____

Mark of RCA *Quality*

Tmk(s)®

RADIO CORPORATION of AMERICA

COMMUNICATIONS PRODUCTS

CAMDEN, N.J.

In Canada: RCA VICTOR Company Limited, Montreal

PICTURE OF THE MONTH

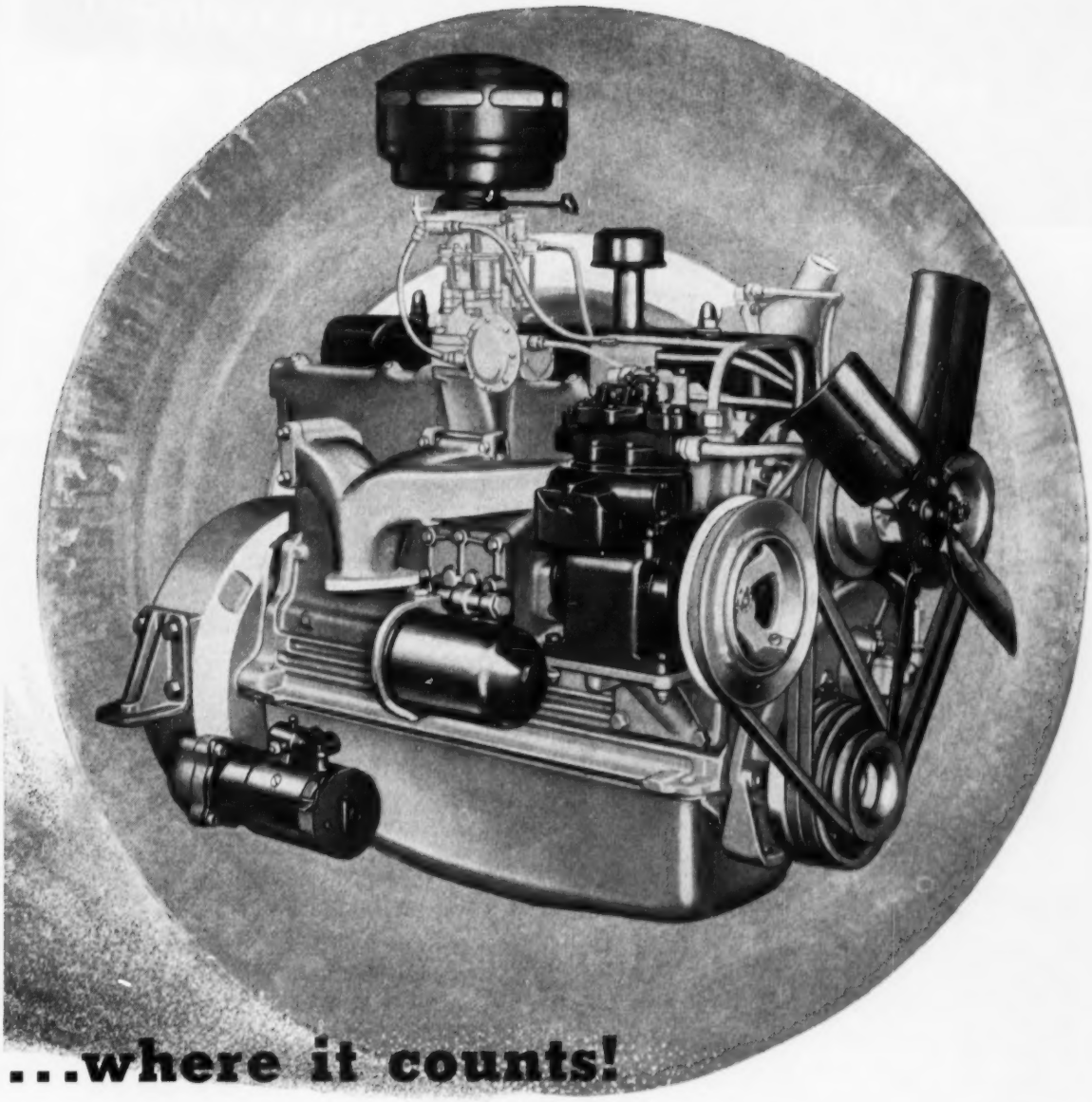
Method Speeds Cofferdam Work

• At Rocky Reach Dam on the Columbia River, a joint venture of five contractors headed by L. E. Dixon Co. of San Gabriel, Calif., completed a 24-cell cofferdam in less than four months. First they built a groin of gravel and rock upstream from the cofferdam site to deflect the river away from the construction area. Cells No. 1 and 24 were constructed from a berm built up around those cells. When the two cells were completed, the contractors built a road from the bank out to the top of the first cell and drove each of the remaining cells from the top of the completed adjacent cell. At the same time, a dragline worked on a berm just ahead of the cell under construction, excavating the area where the next cell would be located and casting the excavated material in front of it along the inside perimeter of the cofferdam to extend the berm so that it could move along to excavate subsequent cells. After completion of all 24 cells, the dragline excavated the groin and cast the material against the 16 cells at the upstream end of the cofferdam.

more power at the wheels...

No matter how you slice it—it's power at the wheels that counts. And you get it with a Reo Gold Comet OH-170. This "big-load hustling" engine combines *straight six economy with V-8 responsiveness* to give you the most efficient six cylinder engine in its class. Its "wet-sleeve" design and other advanced Reo exclusive features cut downtime and overhaul costs in half.

For "cost of power to the wheels", there is nothing comparable on the road. And Reo can prove it. So ask your Reo salesman for a demonstration. There's a Reo Gold Comet Six engine for trucks of any make.



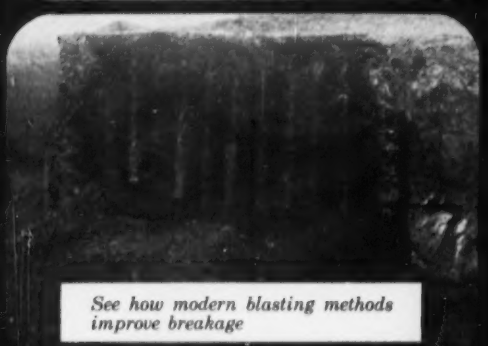
...where it counts!

Six Cylinder Gold Comets
up to 170 h.p. Gas
up to 160 h.p. LP-Gas

REO DIVISION LANSING 20, MICHIGAN
THE WHITE MOTOR COMPANY

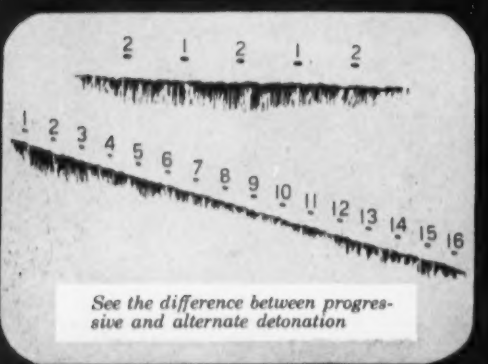
TO HELP YOU BLAST WITH GREATER ECONOMY

The INSIDE STORY



See how modern blasting methods improve breakage

See how the point of initiation affects rock movements...controls throw



See the difference between progressive and alternate detonation

Don't miss this movie for men who use explosives in Quarries, Strippings and Construction!

Here is a motion picture that gives the facts on modern blasting techniques. It shows how you can save money through better, more complete fragmentation . . . how you can increase safety by eliminating the need for secondary blasting . . . and how your public relations can be improved by holding noise and vibration to a minimum.

"*The Inside Story*" is prepared by Atlas Powder Company as a technical service. Show it to your organization for a better understanding of scientific blasting. It explains in detail how the point of initiation affects blasting results . . . how millisecond delay techniques and alternate velocity loading are used to gain maximum efficiency.

This information also makes "*The Inside Story*" well suited for showing at institute meetings and to other engineering groups.

How to get the film. Simply write us on your letterhead, telling us at what type of meeting you'd like to show "*The Inside Story,*" and approximately when you'll need it. We'll try to ship a print to you well in advance of the date you select.

Ask also about other Atlas educational material such as the films, "*How to Handle Women and Explosives*" (for your safety meetings), and "*We're Blasting Near You*" (to show to your neighbors). And write for "*Better Blasting,*" the informative Atlas newsletter on latest blasting materials and methods.

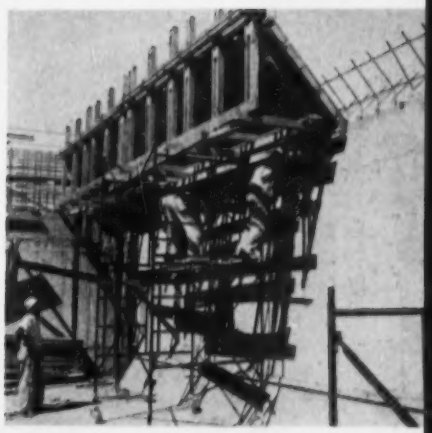
EXPLOSIVES DIVISION

ATLAS POWDER COMPANY

WILMINGTON 99, DELAWARE

offices in principal cities

Construction News in Pictures . . .



Easy to Handle

Gang form 16 ft long rolls into place for a Y-wall pour on a job in Columbus, O. Contractor Wander & Mason ganged standard Symons forms braced by wood frames. Adjustable casters raise the form to the required elevation. A three-man crew can strip a 16-ft section, move it to a new position, and reset it in 20 min.

Carved in Rock

Excavation for the new Time & Life Building in New York involves removal of 215,000 tons of rock, approximately 15,000 tons more than the estimated weight of the 47-story building. Last of the rock will be hauled out of the 40-ft-deep pit over a timber ramp 85 ft long. Contractors are George A. Fuller Co. and John Lowry, Inc.

Record Lift

Two derrick barges lift a record 630 tons in a practice run at Houston, Tex. The big Texas Tower platform was fabricated by Brown & Root, Inc., and towed out into the Gulf of Mexico on barges. There, the two derricks lifted it 55 ft and placed it on steel piling. The tower is a new link in the U.S. continental defense system.

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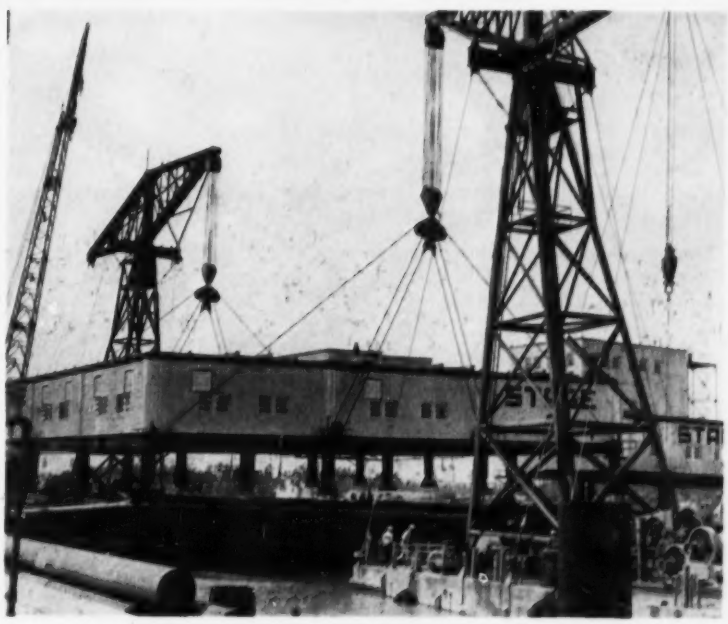
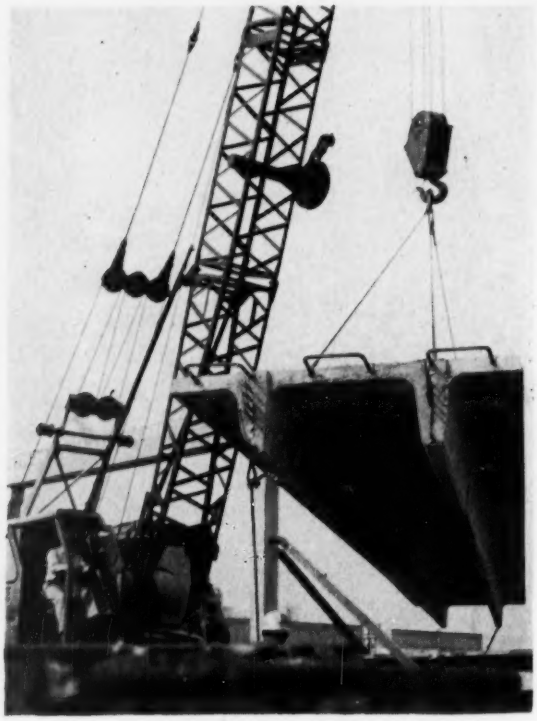


Precise Control

International Drott TD-9 carefully backfills over pipeline at housing project in suburban Cleveland, O. Contractor Dan Cannavino is laying 18,000 ft of storm sewer and an equal amount of sanitary and water pipelines. An American 300 backhoe digs the trench; the TD-9 handles clearing, grading, transporting pipe, and backfilling.

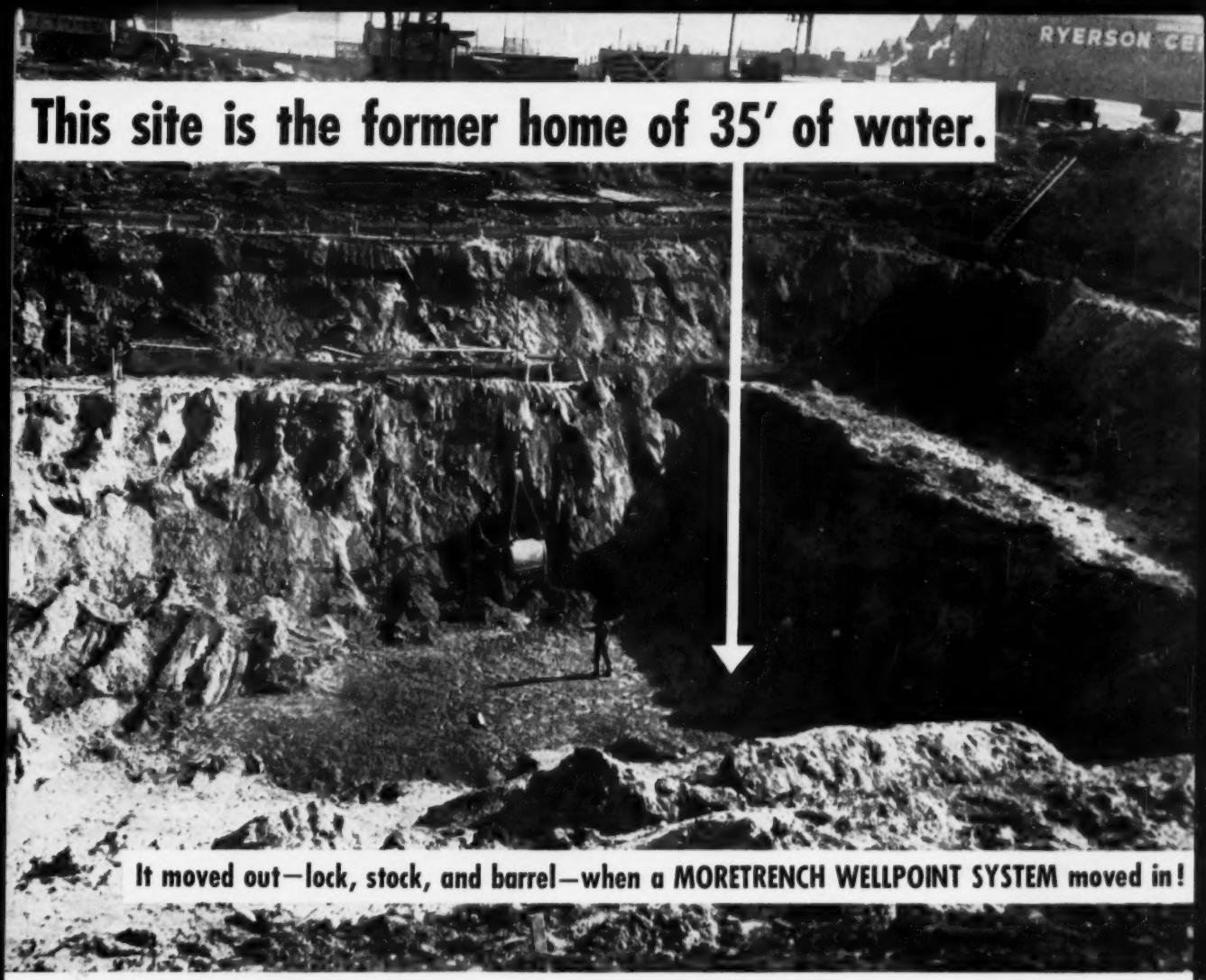


On-Site Prestressing

Crane lifts prestressed roof panel 40 ft long and 5 ft wide from a casting bed at the site of the new General Electric Co. office and warehouse building in Los Angeles. A joint venture of C. L. Peck and Noyes Roach Co. is prestressing 496 of the double-tee section roof panels and 84 girders in special beds they set up at the site.

Double Duty

In construction of Ice Harbor Dam on the Lower Snake River near Pasco, Wash., contractor Montag-Halvorsen-Austin & Associates work a Manitowoc 4500 dragline two shifts a day. It sets forms during the first shift; then it pours concrete on the second shift. It can pour as many as thirty 4-yd buckets per hr, the contractor says.


RYERSON CE
This site is the former home of 35′ of water.
It moved out—lock, stock, and barrel—when a MORETRENCH WELLPOINT SYSTEM moved in!

Rapid Digging IN THE DRY Speeds Construction of Jersey City's Sewage Treatment Plant.

Garden State Constructors and Associates, Jersey City, contractors for this portion of the city's $25,000,000 sewerage project, know how quickly water can sabotage the progress of any job. That's why for quick, sure results in this mixed-up material (garbage fill, sand, silt and clay layers), they selected Moretrench to do the pumping.

When you have to deal with water, deal with Moretrench. Experienced engineers in any of our offices will be glad to analyze your problem, estimate on your requirements. The know-how of thirty years of pumping is at your disposal.

Send for Catalog

MORETRENCH CORPORATION

90 West St. New York 6 | 4900 S. Austin Ave. Chicago 38, Illinois | 7701 Interbay Blvd. Tampa 9, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey

Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

"OUR ALLIS-CHALMERS

J. C. Lavender, project superintendent for Craggs Construction Company.

Forty Five motor grader puts finishing grade on roadbed. Notice how the ROLL-AWAY moldboard keeps load live and rolling.

Big, powerful HD-21's clear right-of-way and level fill. Torque converter drive makes big production easy for operator . . . easy on tractor and equipment.

FLEET HELPS US BID LOW

...finish the work on schedule"

. . . that's what J. C. Lavender, superintendent for the Craggs Construction Company, Ocala and Gainesville, Florida, says about his company's Allis-Chalmers fleet.

Craggs Construction Company was awarded a 14½-mile job on Florida State Route 207, an important farm-to-market road in the heart of the potato growing area. The contract called for widening, filling, straightening out several sharp curves, and constructing a large number of drainage ditches.

Here are the Allis-Chalmers machines that did the bulk of the work: 4 motor scrapers, 4 motor wagons, 13 crawler tractors, 4 pull-type scrapers, 5 motor graders.

This Allis-Chalmers fleet moved approximately ½ million cubic yards of material from 5 borrow pits for filling and stabilizing. Almost 200 acres of land were cleared and grubbed by bulldozers as the right-of-way was widened to accommodate a 24-foot pavement with 8-foot shoulders.

Whenever you have to move dirt in a hurry — on large jobs or small — investigate the many reasons for going Allis-Chalmers. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Engineering in Action

ROLL-AWAY is an Allis-Chalmers trademark.

Forward forced ejection and high apron opening provide fast, clean, unobstructed dump and smooth, controlled spread. This keeps fill area in good operating condition . . . contributes to better compaction.

Curved cutting edge and offset center bit of Allis-Chalmers motor scrapers mean no corner voids . . . a full payload every trip.

Construction 'Round the World . . .

In Venezuela

A spiral-shaped building, called a "Helicoide," will cover this ramp, carved from a mountainside in Caracas. One-way traffic will move up the 2.5% incline past a series of shops and offices in the $25-million business center.

In England

Ruston-Bucyrus shovel with a 2½-yd bucket loads rock into 15-yd Euclid rear dump during excavation for a dry dock at Falmouth, Britain's most southwesterly port. Excavation on the job involves the removal of 500,000 yd of shale.

In Russia

One feature of the recent Moscow Building Exhibition was this prefabricated concrete tunnel section that will go into an extension of the city's subway system. Tracks and third rail are built into each of the 10 subway sections.

From MINNESOTA to the "BIG MO"...

Manitowoc dragline digs 400,000 yards per month. Easily dismantled for major moves.

Using a Manitowoc Model 4500 dragline equipped with a 7-yd. bucket and a 100′ boom, the Luhr Construction Company of Columbia, Ill., averaged 400,000 yards of black dirt per month on a river cleanout and widening project near Beltrami, Minn. Right after this job the big Manitowoc was dismantled in only four days, shipped to Sibley, Mo., and then reassembled in less than three days. At Sibley the 4500 drag worked on a 180′ — 220′ wide, 23′ deep channel diverting a section of the Missouri River.

The big capacity Manitowoc 4500 is easy to ship and easy to assemble, making long distance moves like this both practical and profitable. By using both the mast and boom during tear-down and reassembly, the 4500 is practically a self-dismantling unit.

Despite its size, this Manitowoc is fast. Simple design and good balance contribute to fast cycles and heaped buckets. The Luhr Construction Company's machine averages two passes every minute — faster than a smaller 3-yd. rig working with the Model 4500.

There's no complicated electric motors — no restrictive trailing cable to hinder mobility. Unit drive, composed of a single diesel power package, gives you unmatched on-the-job mobility seldom found in a machine of this size. Mobility that lets you use the 4500's capacity to profitable advantage on any job.

Here's a real powerhouse with the mobility of units having much smaller capacities. Find out how the Manitowoc 4500 will fit *your* jobs. Your helpful Manitowoc distributor has all the details.

Manitowoc Engineering Corp., Manitowoc, Wis.

SHOVELS 1-5½ YD.

Manitowoc

CRANES 20-100 TON

ON THE CONNECTICUT TURNPIKE

No place for trucks you have to "baby"! Gammino's Macks are hauling close to *seven million* yards of rock and earth as the Connecticut Turnpike is rushed to completion. That means those mighty shovels are really moving as they drop the heavy, jarring loads of rock into the trucks beneath. It also means that Gammino's Macks are taking tremendous punishment, both from the hustling shovels and from the makeshift roadbeds over which they operate in an endless loading-dumping cycle.

"Sure, it's backbreaking work for any other truck," says Mr. Gammino. "That's why we use Macks."

No job's too tough for Gammino, because... THEY

Want the real pitch on Mack can-do?

Ask Frank Gammino of M. A. Gammino Construction Company, Providence, Rhode Island. He'll talk Macks with you all afternoon.

Ask him about the small but important jobs, where Mack economy enables him to deliver at a profit.

Ask him about the big jobs, where the power and schedule-meeting dependability of his Macks pace the entire operation.

And ask him about the really rugged jobs—the chassis-jolting rock-loading jobs . . . the up-to-the-hubs-in-mud jobs . . . the jobs where his Macks work round the clock, rushing out big-yardage loads for weeks on end without a break or a breakdown.

Then ask him why he has still *more* Macks on order. We'll stand on that. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

YEAR AFTER YEAR IN THE U. S. A., MACK DIESEL TRUCKS OUTSELL ALL OTHERS

ON THE PROVIDENCE RIVER BRIDGE JOB

Gammino's Macks are keeping big buckets busy. Concrete, not excuses, is what this job calls for—any late deliveries mean expensive, profit-robbing delays. "With Macks on the job," says Mr. Gammino, "no one sits on his hands."

DEPEND ON MACKS

ON OVER-THE-ROAD HAULING OF CRUSHED STONE AND DIRT

. . . a wise contractor keeps a close eye on running costs—fuel, maintenance, down time, tire wear, etc. Mr. Gammino does just that, and he reports: "Nothing touches a Mack for ton-mile economy."

MACK
first name for
TRUCKS

5297

If your job calls for PIPE PILES

"Faster-from-Foster" service pays off in big savings!

As uses of pipe for piles increase, more and more contractors are calling on L. B. Foster Company for the best and fastest service available. These contractors know us as specialists in steel pipe for piling, in all diameters and wall thicknesses—spiralweld, electricweld, seamless, and lapweld.

On this river-span job we delivered 16-inch diameter Taylor-Forge Spiralweld foundation pipe (in 52 and 60-ft. lengths) as piling for bents of two bridges which span 135-ft. streams. While we are constantly supplying scores of small jobs every day, we'll also deliver all the material required for even the biggest jobs . . . to your job site, and . . . on schedule. No delays for you, no storage problems, more savings.

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STEEL SHEET PILING · H-BEARING PILE · STEEL PIPE · RAILS · ALUMINUM PIPE · ALUMINUM BRIDGE RAILING

Working from barges, Brennan Brothers of La Crosse, Wisconsin and Lansing, Iowa placed spiralweld foundation pipe in 8 feet of water, then had to drive through 40 ft. of Mississippi River sand, clay and mud bottom. Piling, supplied by L. B. Foster Co. was concrete capped, each measured 26 x 3 x 2 ft.

Construction Methods AND EQUIPMENT

DECEMBER, 1957

VOLUME 39 • NUMBER 12

HENTY T. PEREZ, Editor

When Sabotage Reigns Everybody Loses

YOU'RE A TAXPAYER, and you're asked to pay more than is ordinarily necessary for a needed facility. You're a workman, and the tools you need to earn a day's pay are arbitrarily denied you. Or you're a contractor, and the machines you depend on to keep you successfully in business are sabotaged.

Well, that is what happened in the scene pictured. One night "a person or persons unknown" placed about 15 sticks of dynamite alongside the engines of a self-propelled scraper and a crawler push-tractor and blew them up.

This particular outrage happened in Iowa. Similar stupidities have occurred in various areas throughout the country. Why?

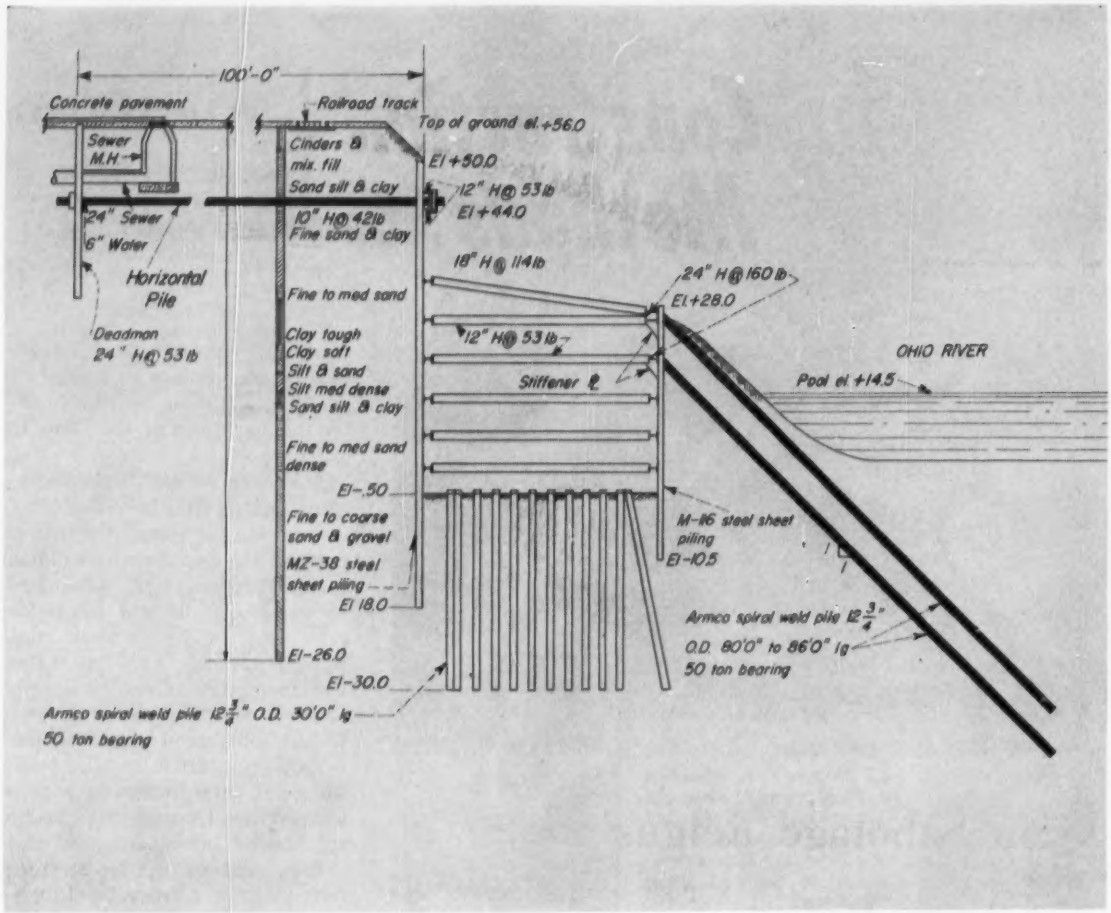
This case has not yet been solved, but usually incidents of this kind arise out of some labor disputes. We're sure no reputable union leader would be a party to such an act. It is the racketeering fringe of the labor movement, with little to lose and much to gain, who resort to these terroristic tactics because they have no genuine legitimate benefits to offer the working men they seek to organize.

The owner of the pictured machine is, it is true, a "non-union" contracting company. Yet it does not pay its men less than union scale. The firm itself said it had not been approached by union organizers. And even after union representatives had contacted the men themselves, and only some 8 to 10% of the employees on the job signed up, there had been no indication of labor trouble. But later, someone with a warped mind seemingly tried a spectacular intimidation scheme.

It so happens that the bombing took place on a federal-aid highway job. So it points up anew the logic of the request of the Associated General Contractors of Amercia that the Federal Bureau of Investigation be empowered to enter any cases of malicious damage or sabotage whenever government funds are involved in the project.

After all, damage to the machines (in this case some $25,000) and loss of production is ultimately paid for by the taxpayer, and local law enforcement agencies too often seem indifferent or ineffectual in their investigations of the incidents and in their prosecution of persons found responsible.

But, in the final analysis, it is organized labor itself — even though completely innocent of complicity—that must see that these bombings and other barbarisms are stamped out. There is no excuse for such terroristic stupidities. And, in the end, the labor movement will be the big loser.



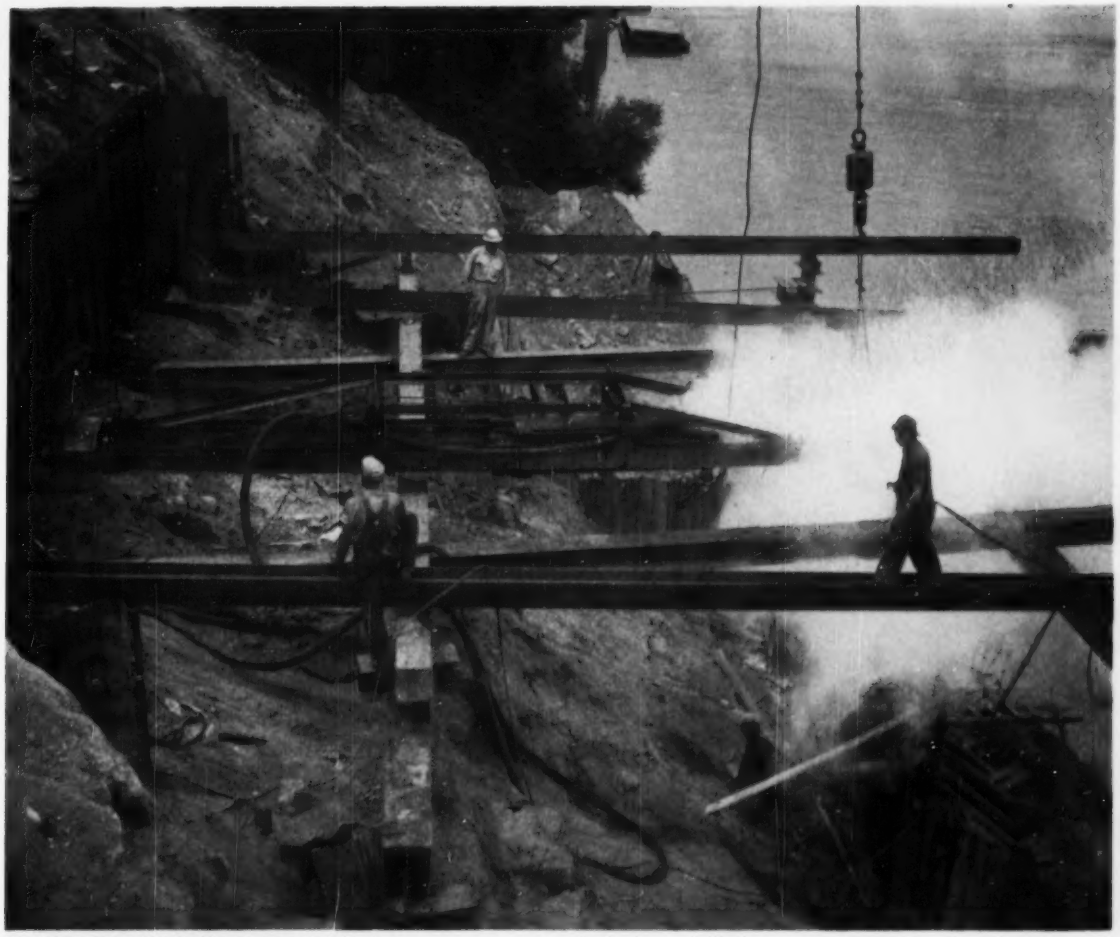
IN A NUTSHELL—Batter piles brace cofferdam; horizontal piles hold high wall.

BRACING THE RIVER SIDE—Pipe piles on 45-deg batter are spliced in 80 to 86-ft lengths. After final driving they will be welded to sheeting to prevent uplift.

Horizontal

CONTRACTOR Harry O. Wyse of Lexington, Ky., has an unusually interesting cofferdam underway. It involves driving piles horizontally into a high, steep bank. When CM&E discussed the job with Wyse, here's what he had to say:

"We have put down a great number of cofferdams on these inland rivers, some to depths of 65 ft below water level and many of them in very bad soil. The thing that sets this particular cofferdam apart from the others is its location—it's midway of a steep bank of the Ohio River. And it's directly in line with a paved street, with buildings on both sides of it, that dead-ends at the river bank 42 ft above the water.



ANCHORING THE LAND SIDE—With leads slung by crane on barge, hammer drives anchor pile up 2% slope. Second crane, on bank above, holds hammer against pile by line through snatch block attached to sheeting. Piles are 10H42, 100 ft long.

Piles Hold Hillside Cofferdam

"This cofferdam is approximately 41x52 ft. The subgrade lies about 20 ft below river pool stage, and the bottom 25 ft of soil is quicksand. In the bottom we have to drive 12¾-in. OD Armco spiral weld pipe piles, which are going to a penetration of 30 ft to get a bearing of 50 tons. There are 55 piles in all.

"When you visualize building a cofferdam in the middle of a 1:1 slope, with a heavy load on the land side and nothing to brace against on the river side, you have quite a problem.

"We drove a line of MZ-38 steel sheet piling parallel to the top of the bank (on which, by the way, is located a railroad spur track). These sheets will remain in place when the final structure is completed. The rest of the sheeting, which is M-116, will be removed.

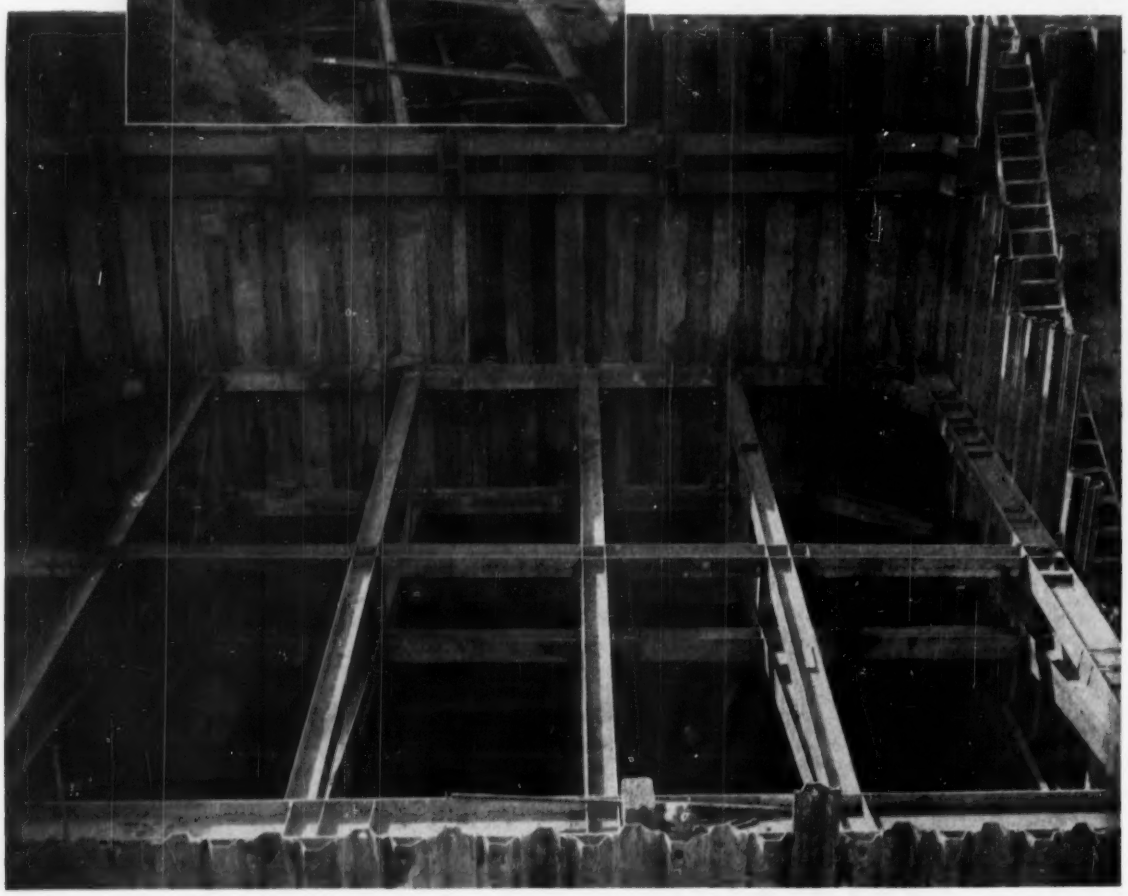
"To brace the cofferdam we drove a double row of 12¾-in. Armco piles on a 45-deg batter into the river bottom. Lengths ran from 80 to 86 ft to obtain 50-ton bearing. These battered piles brace the river side of our cofferdam. Then, through a system of struts, they brace the land side.

"We figured that we needed more than this to hold the high surcharge on the land side. At first we had planned to dig trenches in the street, attach cables to deadmen, and thus tie the top waler for a holdback. But since the soil under the concrete pavement was sand, we realized that considerable excava-

STRESSING THE ANCHORS—Jacks between needle and wales give 60-ton load.

HORIZONTAL PILES BRACE COFFERDAM ... continued

COMPLETING THE COFFERDAM—Crane clams soil from braced pit. Wellpoints operated by one 6-in. and one 4-in. Jaeger pump dry the pit. At far left (below) is 84-in. sewer that now will no longer empty into river.



tion would be required. So we conceived the idea of driving piles horizontally into the bank to act as anchoring tie-rods. This seemed to us to be a very happy thought.

"We used five 10-in. 42-lb H-piles 100 ft long. A light framework was built to support and guide them as we drove them at a slight upgrade into the bank. A Northwest No. 8 crane on a barge held the weight of the McKiernan-Terry 9-B-3 hammer and its leads. At the same time, a Marion 352 crane on top of the bank maintained a constant pressure of the hammer against the end of the pile by means of a snatch block and cable.

"In the street we dug a small pit at the 'target area,' and in each instance the pile penetrated to within 6 in. of our target. In doing so, the piles passed under concrete pavement, one manhole, a sewer, and a high-pressure water line. One pile passed under a small building. To anchor each tie-back pile, two 12-ft lengths of 12-in. 53-lb H-pile were driven vertically, one on either side, and welded to the tieback. The street was immediately restored.

"In the cofferdam we used 12-in. H-beams for walers, one above and one below the horizontal piles. We prestressed the latter to 60 tons each. For this, we cut a slot in the pile web and dropped in an 18-in. needle beam. This took the reaction of two hydraulic jacks acting against the walers and transferred it to the pile. When the load had been applied, channel-iron stubs were welded to pile and walers to complete the joint.

"We wondered whether this cofferdam would hold during the driving of foundation piles, which is now underway, and are very gratified with the results. As you know, the danger of movement while excavating is very great. But there is also danger from vibration caused by piledriving, as well as movement while backfilling. We believe the tie-back piles will hold the sheets securely during backfilling to prevent any cracks in street or buildings.

"Clark Construction Co. of Owensboro, Ky., has the general contract for three sewage pump stations for the City of Owensboro, and I have a subcontract for the cofferdams. Tom Pitman has done our engineering on this project, Walt Verser is superintendent and Albert Messick is piledriving foreman."

Match the Rig to the Job

BIG TOOL FOR BIG CUT—For an 800,000-yd rock cut, contractor brings in a big Bucyrus-Erie 5-yd electric shovel to load fleet of Euclid end-dump trucks.

Modern contractors must call on a wide range of machines to move earth profitably. And they can't afford to be wrong very often. It simply doesn't pay to work one rig where another will operate more efficiently.

HIGHWAY CONTRACTORS face a critical challenge today. Stiff competition, rising costs, and tight schedules make it increasingly difficult to move earth at a profit.

There's just one answer—top-notch management. And proper equipment selection is, perhaps, the most important element in good management. Profit margins these days are too slim for a contractor to work one rig where another will do the job more efficiently. In today's market, the machine must match the job.

Two contractors who know how to match the machine to the job are Union Building and Construction Corp. and George M. Brewster & Son, both of New Jersey. They are working separate highway jobs in New York State, and both jobs are excellent examples of good equipment application.

Union's job is a 7-mi section of the New York Thruway in the Berkshire Mountains; Brewster's job is a 4-mi modernization of U.S. 17 in the Catskill Mountains.

Both jobs involve a lot of earth and rock so they lend themselves to comparison. Cuts are big, but so are the shovels. Brewster's biggest cut consists of about 800,000 yd of rock. And instead of simply gnawing away at it with a 2½-yd shovel, they moved in a Bucyrus-Erie 5-yd electric rig that cut away the hill in a fraction of the time the smaller rig would have required. Besides, Brewster likes the smooth operation and low maintenance of electric equipment. When the shovel works near available power, Brewster runs a cable directly to the machine. But as soon as the rig gets several thousand feet from the power source, they bring in a trailer-mounted Cat D397 generating set to take over.

Union's major cuts are not as large, but they are big enough so that it takes a 4-yd shovel to slice through in one pass. The contractor assigned three Lima 1601's to the job, and they came through with flying colors. Smaller cuts are handled with 1½ and 3½-yd shovels.

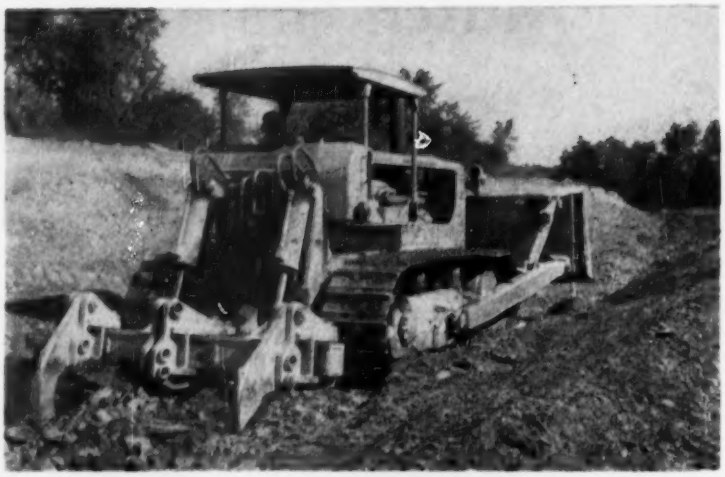
Although both jobs have plenty of rock excavation, there's even more earthmoving involved. On Brewster's job, most of this material is boulder-filled glacial till that proved too tough for self-propelled scrapers. Project Manager Edward E. O'Neill quickly pulled them off and finished the job with shovels and Euclid bottom-dump wagons. A few tractor-drawn scrapers were left on the job to handle specialized short-haul work. They even moved a considerable amount of shale, once it was loosened with a D9 ripper.

Union's job had plenty of work for Euclid end dumps, bottom dumps, self-propelled scrapers, and tractor-drawn scrapers. Big

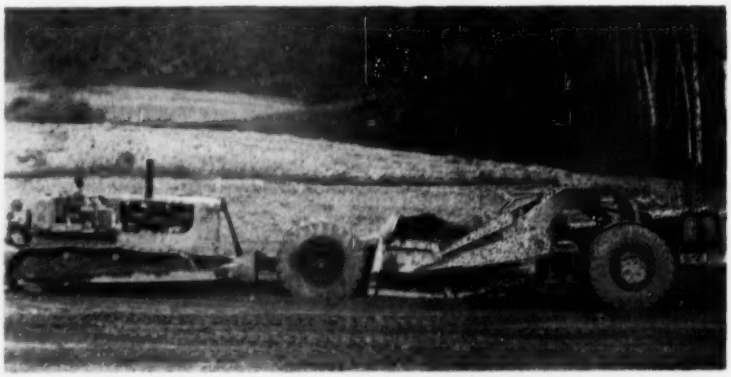
18-yd and 24-yd scrapers pushed by D9's handle the bulk of earth-moving, yet a half dozen tractor-drawn pans prove invaluable for opening cuts and stripping. Combining the production of shovels and scrapers, Union is moving about 25,000 yd in a 10-hr day. Of 2,500,000 yd of unclassified material, about 400,000 is rock. Bulk of Union's blast hole drilling is done with a fleet of nine Air-Tracs. But for specialized drilling in hard-to-get-at places, the contractor depends on his own shop-built tractor drill. It consists of two Air-Trac masts with hydraulic jibs mounted on the front of an old D8 tractor. A new Chicago-Pneumatic 900-cfm compressor mounted on back supplies air.

Brewster has a similar rig for specialized drilling, except that the compressor is powered by the tractor's rear power take off, and a dust collector is mounted on top.

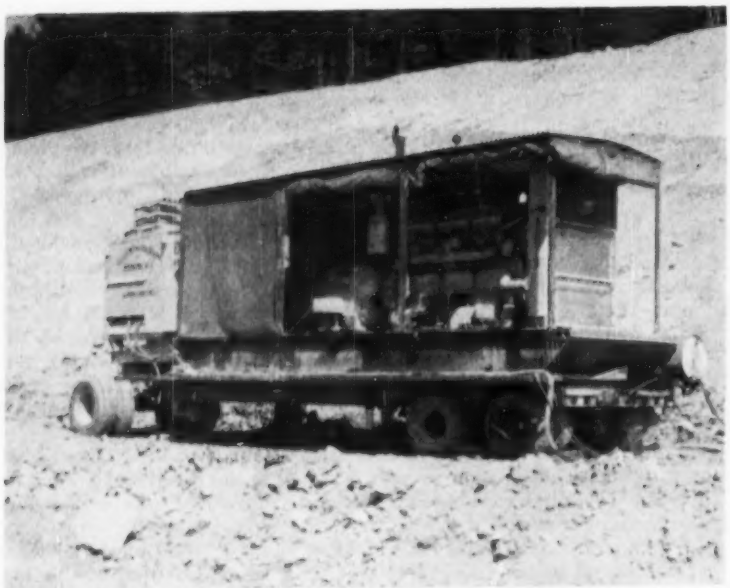
Because of the wide variation in size of rock cuts, Brewster requires three distinct types of drills. Besides the Air-Tracs and tractor drill, he also employs two big Mayhew rotary drills on a 75-ft deep cut through relatively soft rock. Here, again, is an example of matching the machine to the job. Conventional drills also could have done the job, but the big rotaries were brought in because they could it better.



RIPPER BREAKS ROCK—Caterpillar D9 rips shale on Brewster job, saving expense of drilling and blasting. Broken material is moved with fleet of tractor-drawn pans.



FAST LOADING—Euclid scraper is loaded quickly on Union job by Cat D9. Project involves plenty of earth and rock, requires wide range of equipment sizes and types.



DIESEL GENERATOR—Supplying power to big 5-yd shovel is Cat D397 diesel-electric set, mounted on trailer. It is kept several hundred feet from shovel's work area.

The jobs offer other examples of proper equipment selection. Take pushers, for instance; they're strictly king-size. And there are good reasons. The giant units cut loading time in half and greatly reduce tire wear. Union push-loads their fleet of 18 and 24-yd scrapers with Cat D9's and Euclid TC-12's.

A lot more accessory equipment is seen on today's jobs. The Gradall and the tractor-shovel are becoming more and more common. Brewster relies heavily on a Gradall for dressing slopes, ditching, and a variety of other jobs. Union has no trouble keeping busy a Michigan tractor shovel. The versatile rig moves quickly to any part of the job, cleaning up, loading debris, and placing finishing touches.

ries it to a steel drum. Here, the heavy oiled dust settles to the bottom while the air blows out of the top of the drum.

The cost of the installation is negligible. In fact, Union can set up one complete system for only $50. A local jobber makes the venturi pipe for about $15, and he rebuilds them every two weeks for only $6. Each unit consumes about 1½ gal of fuel oil per hour. Fuel oil is carried in 50-gal drums and fed to the venturi pipe through a ¼-in. hose.

Representing George M. Brewster is Edward O'Neill, project manager; R. Buhl, project engineer; and G. Walker, general superintendent. Top men for Union Building are George Freeman, project manager; Daniel Flynn, general superintendent; and Karl Kurtenacker, vice-president of Union's eastern division.

Thomas F. Fitzgerald is chief engineer of the New York State Dept. of Public Works, and Conrad H. Lang is chief engineer of the New York State Thruway Authority.

SIMPLE COLLECTOR—Supplied with air from compressor, venturi tube sucks in dust. Oil atomized in tube wets dust, causing it to settle in steel drum.

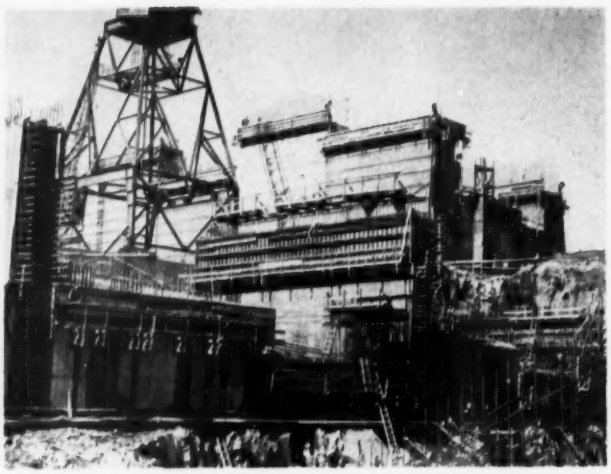
Atomized Fuel Oil Traps Drilling Dust

Union's dust collectors are unique. Instead of purchasing conventional trailer-type dust collectors, the contractor built his own at a fraction of the cost. Basically, each consists of a simple venturi tube that sucks dust from the hole, wets it with fuel oil, then traps it in a barrel.

The venturi tube is a length of 2-in. pipe equipped with a ⅜-in. venturi orifice. At one end of the pipe an enlarged circular section fits around the drill steel at the top of the hole. When compressed air is forced through the venturi, suction pulls the dust from the hole and into the pipe. And as the dust passes through the pipe it is moistened with atomized fuel oil. The wet dust continues through the pipe and into a simple stove pipe that car-

With the prospect of a substantial bonus for early completion, Merritt-Chapman & Scott Corp. is working at top speed on $92-million Priest Rapids Dam. They may even be setting some construction speed records. Their November project estimate probably is the biggest ever for a single month.

COFFERDAMS A gamble paid off, and MC&S won several months time for spillway works.



CONCRETING Volume of concrete is not large, but pours require careful programming.

Big Completion Bonus Spurs

By L. L. WISE
Associate Editor

TIME IS MONEY in a very direct way for the builders of Priest Rapids Dam on the Columbia River in Washington. The $92-million contract—second largest in construction history—allows the contractor 1,900 days to do the work. The penalty for tardiness is $3,000 a day for each of the eight generating units; and the bonus for early completion is $1,300 a day for each unit.

Merritt-Chapman & Scott Corp., holder of the big single contract, has set up its construction schedule for a four-year job. If they can complete the work in that time, they will receive a completion bonus of about $3.5 million.

The project includes concrete sections across the main body of the river with earthfill embankments on each side. Powerhouse is 1,025 ft long. Spillway with 22 openings is 1,142 ft long. The concrete gravity dam is 260 ft long and includes extensive fishway installations. The earth embankments total 3,985 ft on the left side and 3,250 ft on the right side.

What progress has MC&S made in the year and a half since award of the contract? They are making rapid progress. In fact, they may be setting some completion records. The contractor's project estimate for

EMBANKMENTS Excavation is about 90% complete, and a substantial portion of the required 3,000,000 cu yd of embankment is in place.

Priest Rapids Dam Progress

November was expected to hit $3.5 million. That would make it the biggest project estimate ever submitted for a single month.

Since they moved in to begin work, MC&S has:

- Gambled on a cofferdam program and won several months time for spillway construction.
- Assembled an elaborate plant for producing and placing concrete. They already have placed 135,000 cu yd of the 950,000 cu yd of concrete that will go into the job.
- Completed about 90% of the excavation and placed a substantial part of the required 3,000,000 yd of embankment fill.

Priest Rapids Dam is a partnership project undertaken by Grant County Public Utilities District with the financing underwritten by contracts for the sale of more than 60% of the power to other utilities. Design and construction supervision are being handled by Harza Engineering Co. of Chicago under the direction of Calvin V. Davis, president, and E. Montford Fucik, executive vice president. Robert B. Jackson is resident engineer for Harza.

For Merritt-Chapman & Scott, Robert J. Jenks, is project manager, and Russ Hoffman is project superintendent.

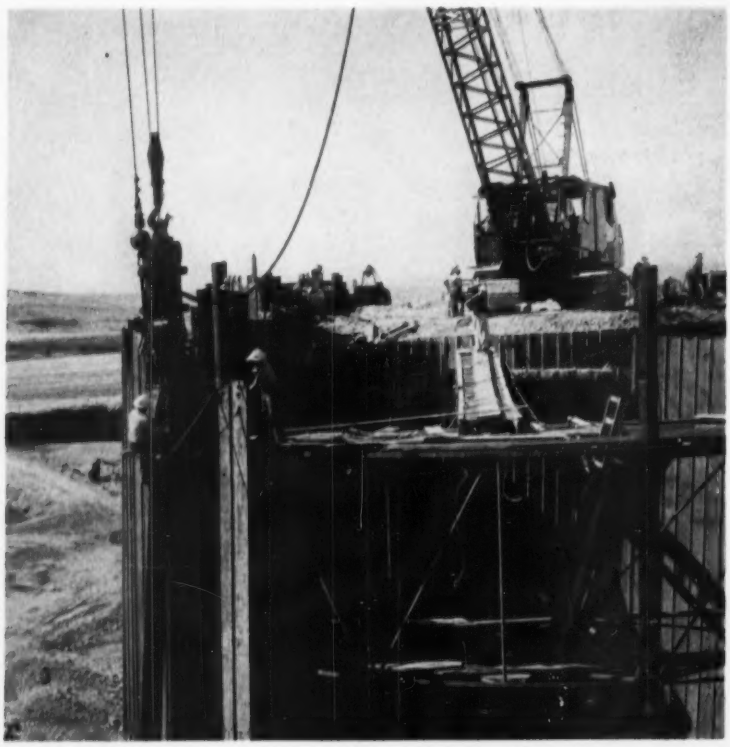
continued on next page

Low Cofferdam, Built Just Before Spring Floods, Suffers Damage but Wins Extra Months for Spillway Work

One feature of MC&S's cofferdam program is a high-level cofferdam around the powerhouse area that permits uninterrupted work during high water periods.

This earth embankment and sheet pile cell protection successfully withstood high water flows last spring when the river went from a low of 52,400 cfs on April 6 to a high of 422,800 cfs on May 27. Earth embankments for the powerhouse cofferdam are built around a single row of steel sheet piling that ties into sheet pile cells on the river side.

LOW LEVEL—Single row of sheet piling, backed by earth and rock fill (upper right), replaces cells washed out of spillway cofferdam by high waters in May and June.



HIGH LEVEL—Vulcan extractor on Manitowoc crane removes 450-ft cofferdam around the powerhouse. Templet braces excavated cell. New cells will be paced before next spring.

MC&S took a gamble in building a lower level cofferdam surrounding the spillway area just before last spring's high water. They figured that this cofferdam would be overtopped. But they reasoned that, if damage from high water was not too great, they would save several months time in getting started on the east half of the spillway.

This low-level cofferdam—built to El 425 or 25 ft lower than the powerhouse cofferdam—was completed just before the river started rising. In fact, the concrete topping for the cells was placed only a few hours before the cofferdam was overtopped.

The gamble paid off. Concrete already has been placed on the spillway. Of course, the low-level cofferdam did suffer some damage from the flood flows. Several cells on the upstream side were lost. This gap has been repaired by driving a single row of sheet pile and covering it with earth and rock. Also the cofferdam cells at the upstream corner were knocked out of line. And some minor damage resulted to cofferdams on the downstream side.

After repair to the low-level cofferdam, the high-level cells between powerhouse and spillway areas were removed. New cells will be placed before the 1958 flood season that will tie into the 22nd bay of the spillway. This will permit uninterrupted work in the complicated powerhouse area.

And by the 1958 high water season, MC&S plans to have the basic part of the east half of the spillway cast with the spillway crests being left low. The 1958 flood will pass over this part of the spillway as well as the west bank side where spillway sections are yet to be built.

After the 1958 flood flow, a cofferdam will be thrown around the right side of the spillway for construction of that portion during the 1958-59 construction season. First power is hoped for late in 1959.

POWERHOUSE TAKES SHAPE—Four American Whirley cranes service powerhouse construction. Forming and placing reinforcing are time-consuming, but MC&S was able to work through the flood season behind the high-level cofferdam.

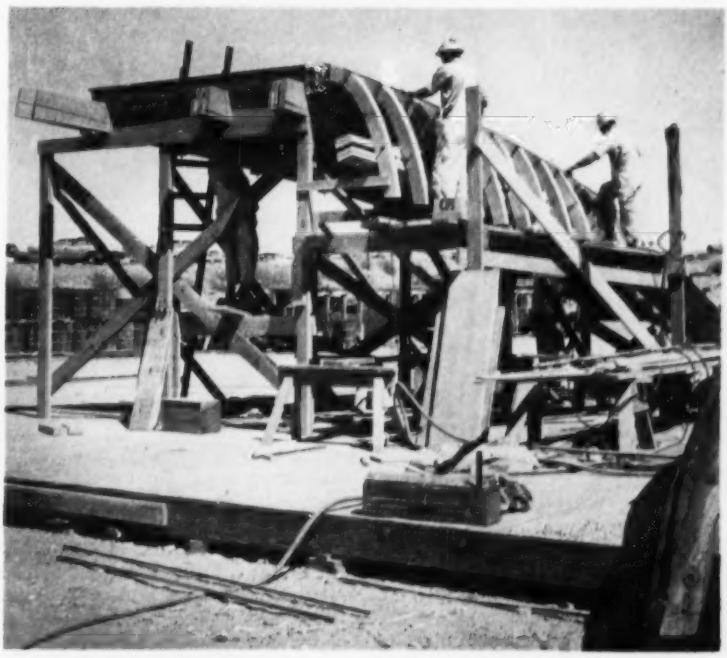
Elaborate Plant Handles Complex Concreting

Volume of concrete at Priest Rapids Dam is not large—only about 950,000 cu yd—but concreting is extremely complex because much of it is structural concrete in powerhouse and fishway construction.

The job requires careful programming of many different kinds of pours. And important in the program is construction of forms and placing of reinforcing. As a matter of fact, chief bottleneck in powerhouse concreting is reinforcing placing. Only so many men can work in one area at one time to place reinforcing. That controls the program.

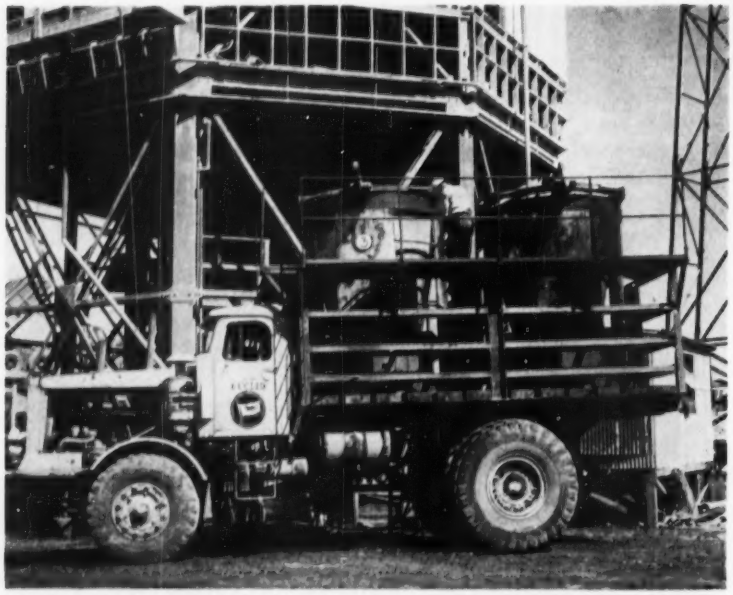
Extent of the reinforcing job can be seen from the fact that there is something on the order of 60,000,000 lb of reinforcing steel on the job. Size ranges up to 1½ in. dia. All steel is cut and bent on the job.

All forms are wood with plywood, shiplap, or tongue-and-groove facing depending on location. One of the most complex forming jobs is on the turbine draft tubes. On many jobs the



FORMS ARE COMPLEX—An extensive carpenter shop on the job fabricates all forms. Engineers stationed in the shop handle planning and scheduling of form production.

BOTTLENECK—Installation of reinforcing is a problem. There is 60,000,000 lb of steel on the job in sizes up to 1½ in. dia. All of it is cut and bent on the job.



DELIVERING CONCRETE—Euclid truck with two-pocket frame on its chassis hauls 4-yd buckets of concrete. Platform permits hook tender to step from one truck to another.

draft tube forms are placed in one piece and require extremely heavy lifts. At Priest Rapids these forms are placed in sections. A draft tube invert form will be placed first and that portion concreted. Then it will be removed for use elsewhere, and forms for the draft tube arch will be placed. This simplifies forming by making the form sections smaller.

All forms are built on the job. An extensive carpenter shop and yard layout has been installed in the shop area. Engineers in the carpenter shop plan and schedule the complex form construction.

At the powerhouse much effort goes into form placing. MC&S tries to develop work efficiency by keeping each foreman and his crew working on the same type of form. For example, the same crew places all the draft tube invert forms where possible. Complicating this is the fact that form placing is on a three-shift basis. And a form cannot be left only partly placed at the end of a shift simply because a crew is going off shift.

Powerhouse construction is serviced by four American Hoist & Derrick Co. Whirley cranes. The huge units handle excavation, place forms, and pour concrete. Crawler cranes handle other parts of the job, such as the fishways and the spillway, where the work is not as complex and lifts are not as heavy.

Concrete is delivered to the job in 4-cu-yd buckets on Euclid trucks with two-pocket frames on the chassis. The trucks have an elevated platform for the bucket hook tender so he can step from one truck to another without coming down to ground level.

The concrete plant includes Johnson batching facilities and four Koehring 4-cu-yd mixers. It was used previously at Folsom Dam.

A feature of the concreting work is replacement of 25% of the cement by a natural pozzolan processed on the job. Subcontractor supplying the material is Butte Pozzolan Co. of Boise, Ida. They have installed a plant to calcine a natural volcanic ash quarried some 5 mi. away. The material in its natural state is slightly reactive, does not quite meet strength requirements, and is too coarse. The pozzolan plant calcines this material to 1,000 deg and grinds it to proper fineness, thus correcting all deficiencies. The plant includes a rotary calcining kiln, a rotary drier, a ball mill, and storage silos.

Pozzolan is hauled to the batch plant by truck. Cement is delivered by rail car.

Aggregate comes from nearby deposits and is processed in a plant that includes Cedar Rapids screens, an Eagle classifier, and Symons crushers. The natural deposit is short on both fine and coarse sands, but it includes plenty of medium-sized sands. There is also a shortage of pea gravel sizes. The crushing facilities make up these deficiencies. There is no waste from the aggregate plant. It provides filter zone material for the embankments. And excess material in any one size goes into embankment shells.

COMPACTING—First layers of impervious fill over the river-scoured basalt bedrock are compacted by Ingersoll-Rand Super-Triplex tampers. Rollers work later lifts.

Tampers, Rollers Compact Embankment Fill

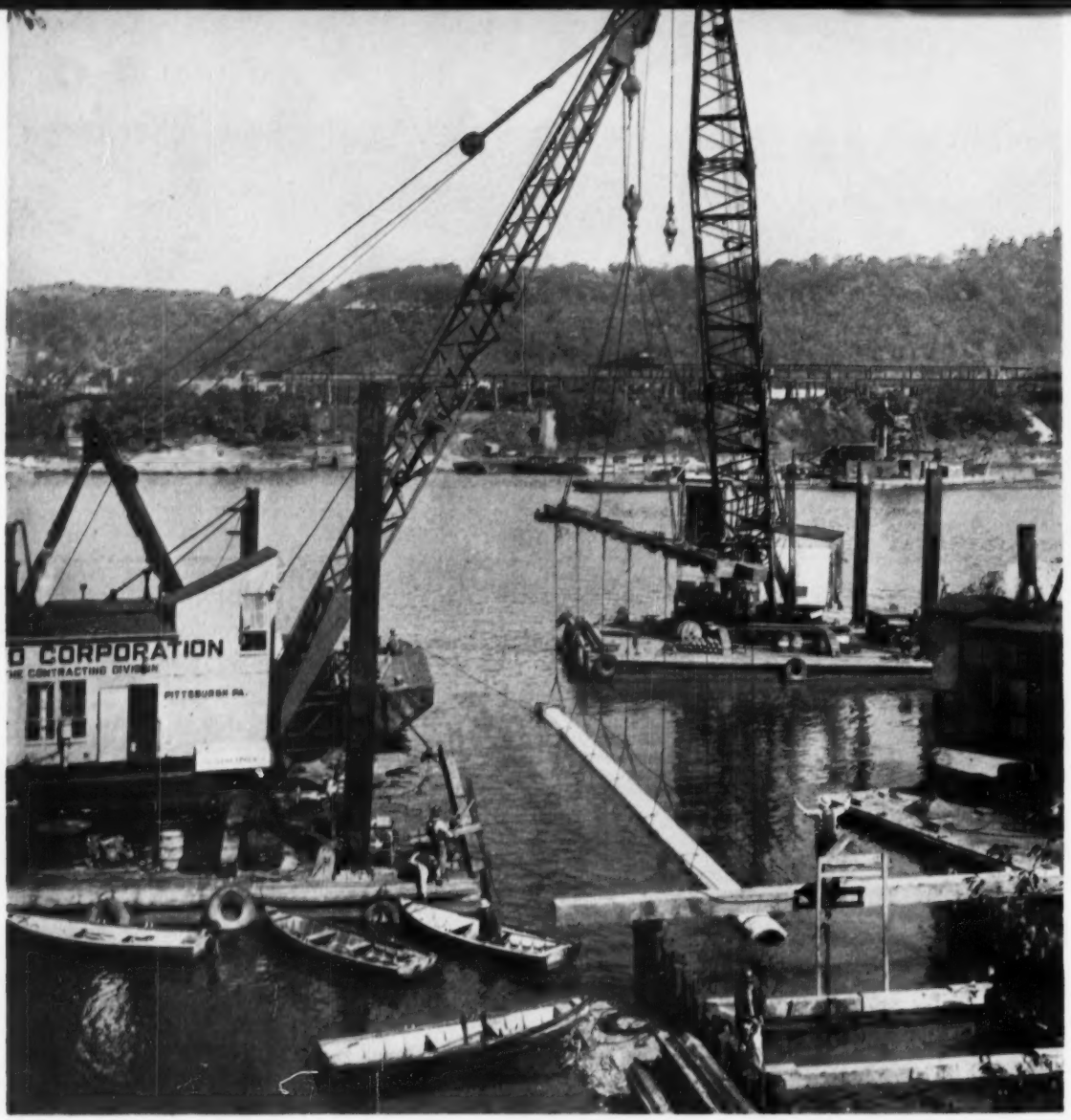
GROUTING—Grout for bedrock foundation under embankments is mixed in a British-made Colcrete machine that keeps mix in suspension. Grout pump is a Gardner-Denver.

Embankment placing—catchline The project includes substantial volumes of earth embankments. The bidding included more than 3,000,000 yd of embankment or fill. But none of this could be placed until the fill areas were excavated to bedrock and grouted. Excavation of the embankment areas was largely a dragline operation with a Manitowoc 4500 used for much of the work.

Providing fill material is entirely a shovel and truck operation. Impervious fill comes from a borrow area on the west side where a Marion 93M shovel loads 17-cu-yd Euclid bottom dump trucks. A Marion 111M shovel works the aggregate pit. And a P&H shovel loads material for the shell areas of the embankments.

Euclid 17-cu-yd bottom dump trucks haul aggregate, impervious fill, and some embankment shell material. Euclid 14-cu-yd end dump trucks haul the rest of the shell material as well as rock excavation and filter zone material.

Compaction of impervious fill on rock is done with hand operated equipment including an Ingersoll-Rand Super-Triplex tamper. After a sufficient layer of fill has been built up four passes of a Southwest sheepsfoot roller hauled by a Caterpillar D8 tractor provides compaction.



LAYING THE PIPE—Floating derrick with seven wire rope slings has picked up a 96-ft, pre-assembled pipe section from the barge. Second derrick will help position pipe on bottom. Diver will then make one underwater joint instead of six.

Surface Work Cuts Diver Costs

IT'S EASIER to make joints in concrete pipe on dry land than under water, and a Pittsburgh contractor took advantage of this fact to speed the laying of a 30-in. sewer pipe under the Allegheny River.

Dravo Corporation of Pittsburgh built the 1,100-ft-long interceptor sewer for the Allegheny County Sanitary Authority sewage disposal system. It connects the communities of Aspinwall, Sharpsburg, Blaw-Knox, Verona, and Montrose to a main trunk sewer in downtown Pittsburgh.

The pipe was manufactured in 16-ft lengths. To put each length in place on the river bottom a diver would have to make 70 underwater joints. Dravo eliminated most of the underwater work by making up six-length sections while the pipe was still on the barge.

This meant that under the main part of the river crossing they installed ten 96-ft pipe sections instead of sixty 16-ft sections, at a considerable saving of time.

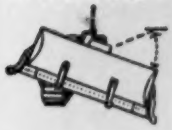
The pipe, cast by Allegheny Concrete Associates, has 5-in. walls reinforced with steel mesh. Each 16-ft section weighs 5 tons.

Trucks brought the pipe to Dravo's Neville Island plant. They were carried to the job site from there in open hopper barges.

Some of the assembly work was done in the hopper barges; the rest took place after the pipe had been transferred to deck barges.

Connections consisted of a bolt on each side of the pipe that

NEW! THE CAT* NO. 7G BULLDOZER



Blade tilts 3′ to either side!

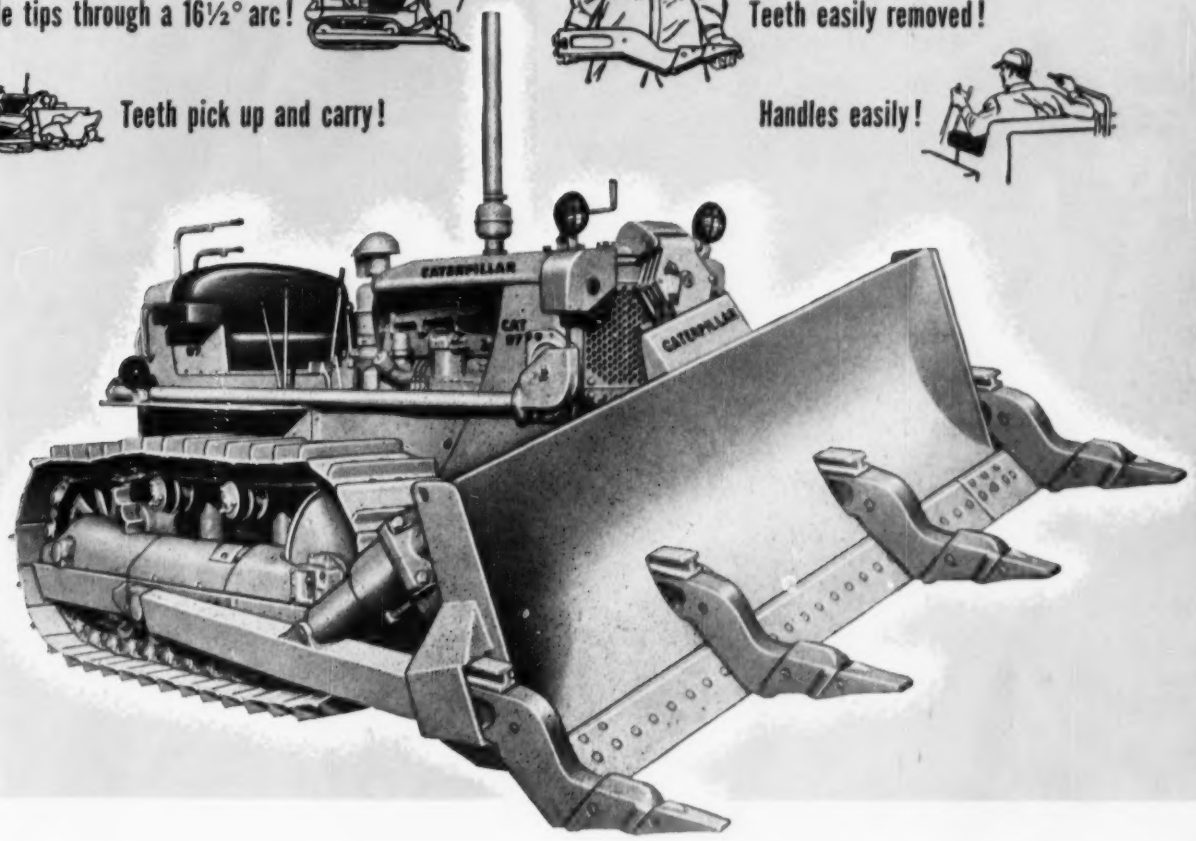
Blade tips through a 16½° arc!

Teeth pick up and carry!

Teeth slice through hard materials!

Teeth easily removed!

Handles easily!



'DOZER AND RIPPER IN ONE

The brand-new Caterpillar No. 7G Bulldozer is a completely different type of bulldozer. The amazing tilt-tip action, and its four heat-treated cast steel teeth, are an entirely new concept in 'dozing. The Gyrodozer is both a 'dozer and a ripper.

YOU'LL GET HIGHER PRODUCTION

The Gyrodozer rips through hard or frozen materials. Its 23″ teeth not only pry out boulders but pick 'em up and carry 'em away. In rocky soil, the wedging action of the teeth surfaces small rocks for scooping up by the 10′ 10″ blade. On the really tough jobs, the tractor's full horsepower can be put behind a single tooth. The Gyrodozer is ideal for uprooting trees and clearing an area in a hurry.

EASY TO OPERATE

A Cat No. 25 Cable Control raises and lowers the 'dozer and a front-mounted No. 44 double-valve Hydraulic Control tips and tilts the blade. The operator never needs to leave his seat to make a blade adjustment.

GET FULL DETAILS

on the revolutionary new Gyrodozer from your Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

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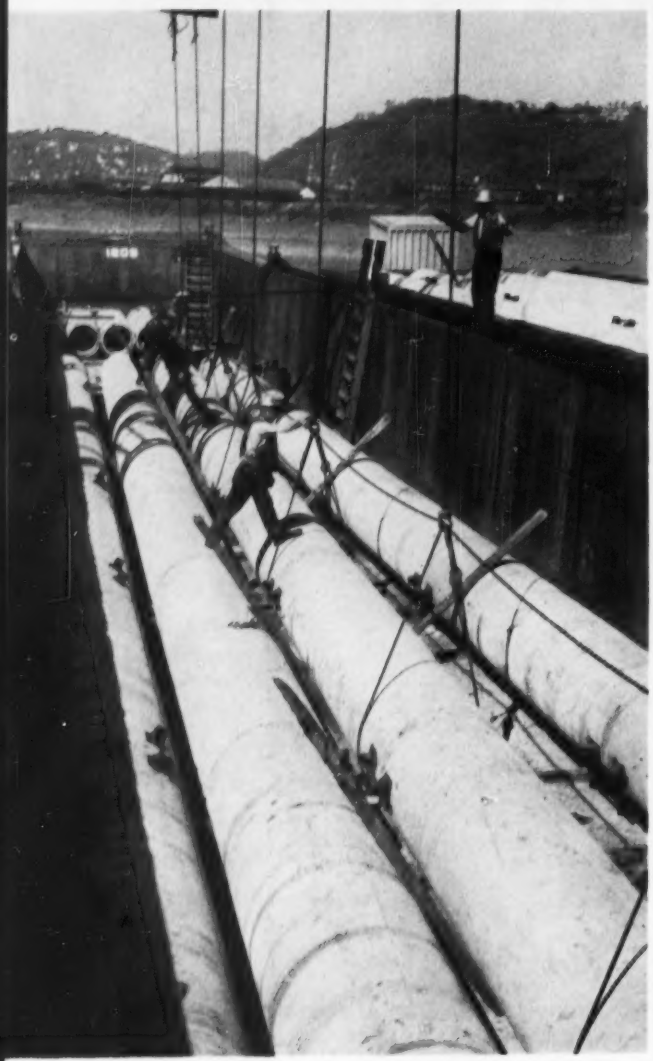
WANTED—
THE HARD WORK



MOVING THE PIPE—Crew connects slings to pipe. Six-length sections were assembled in barge that brought them to site.

CONNECTING THE PIPE—Diver descends to river bottom. He will guide derrick in placing the pipe, then make the connection.

passed through lugs set in the ends of each section. A rubber gasket sealed each joint.

At the site, a floating derrick with seven wire rope slings picked up the assembled 30-ton sections, swung them off the barge, and lowered them into the trench in the river bed.

The trench was necessary to get the proper slope for the sewer line along the uneven river bottom. The depth of excavation ranged from 7 to 26 ft through clay and gravel.

Before the pipe assembly reached bottom a diver went down to direct the placing. He was in constant contact with the derrick crews by telephone.

A second derrick helped control the movement of the pipe, and the assembly was slowly shifted around, under the direction of the diver, until its tapered end slipped into the recessed end of the previously laid section to form a watertight connection against a rubber gasket.

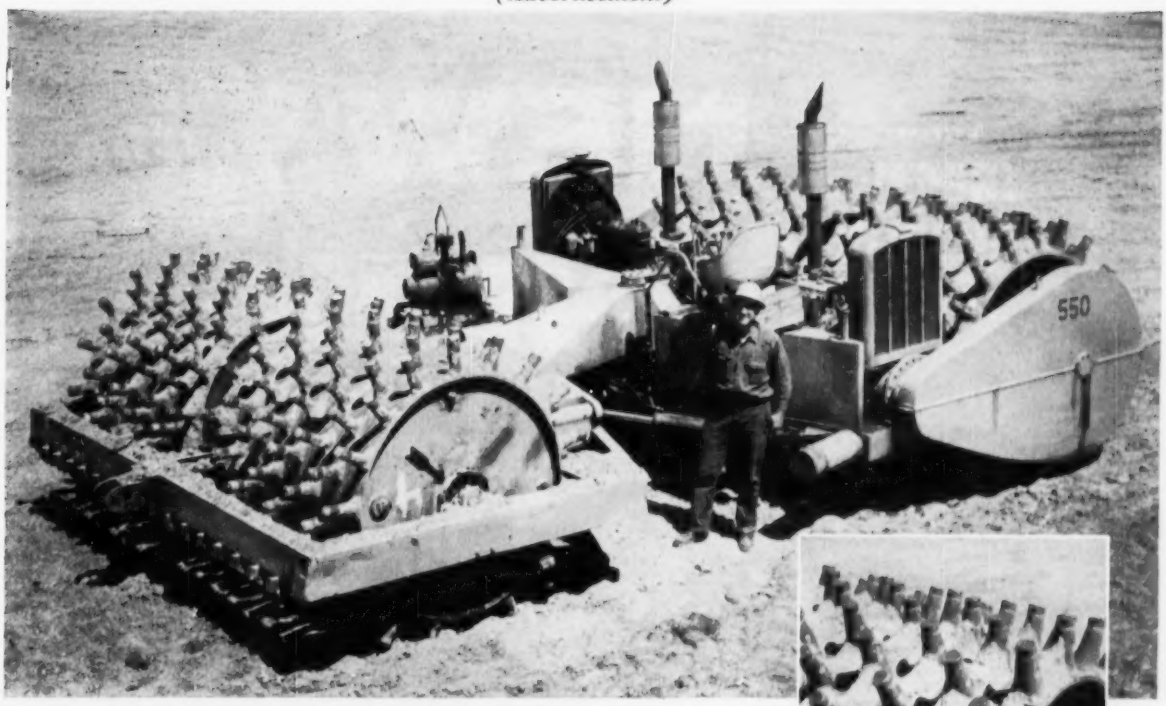
After bolting the new joint, the diver walked the length of the pipe, backing off the bolts of the pre-assembled sections to allow for settlement. Then a pile was driven at the river end of the pipe, and a cable from the pile was looped around the pipe to hold it in position while a dredge backfilled the trench.

The connection to the main trunk sewer is on one side of the river. At this point Dravo built a single-skin steel sheet pile cofferdam around a 100-ft length of the pipe trench. This permitted installation of the connection system in the dry.

On the other bank, three smaller feeder lines connect to the interceptor line at a manhole built by the Harrison Construction Company, who subcontracted the pipeline work to Dravo.

The Allegheny County Sanitary Authority's program includes about 63 mi of sewers to serve the greater Pittsburgh area. The complete project will reduce pollution of the rivers in the area by 150 mgd of sewage.

(Advertisement)



MORE SPEED WITH NEW COMPACTOR

Conventional compactors are not fast enough for the Mittry Construction Co. —so this firm designed and built the double drum monster shown above on a job in Santa Maria, California. Two 200 H.P. diesels drive the machine through torque converters at a speed up to 8 m.p.h.; hydraulic rams operate the steering mechanism. Bare weight is 75,000 pounds; with ballast, 100,000 pounds. This compactor is now doing the work of three ordinary pieces of equipment.

Since speed is the basic reason for this new machine, every factor that keeps it on the job and reduces down-time for repair or parts replacement has been given close consideration. For example, tamper feet might be expected to wear rapidly at high operating speeds; to cut such wear to a minimum the feet were treated to a band of Stoody 121 applied by the semi-automatic welder before the machine went into service. The inset photo above illustrates the appearance of the feet as hard-faced. There will be little "time out" for replacements here!

And on the subject of getting the most out of sheepsfoot tampers—here are two other commonly used methods of restoring worn feet. Both are illustrated at the right. The first method uses short lengths of pipe driven over the worn ends, the "cups" then being filled with deposits of Stoody 121 applied by the semi-automatic welder. This method of weld casting is extremely fast and the ring restores both size and height of the foot. On square shanks the ring may be welded first to close the bottom opening. This method has the advantage of saving time in removing the tamps from the machine.

The second procedure is the use of a split mold, either copper or carbon. The cavity above the stem approximates the original size and shape so the weldor simply fills in with Stoody 121. Gauge is restored automatically. Both methods provide far longer service life at very considerable savings.

The Stoody Guidebook covers hard-facing procedures for all types of heavy equipment. See your Stoody dealer (check the "Yellow Pages" of your phone book) or write direct to the company for a free copy.

Feet are kept out-to-size and with square edges by a single bead of Stoody 121 applied around the perimeter.

Fast repairs result without removing tamps from the machine by driving cups over the worn ends and filling with Stoody 121.

The carbon or copper split-mold surrounds the tamper and forms a cavity which is filled with Stoody 121 by the semi-automatic process.

STOODY COMPANY

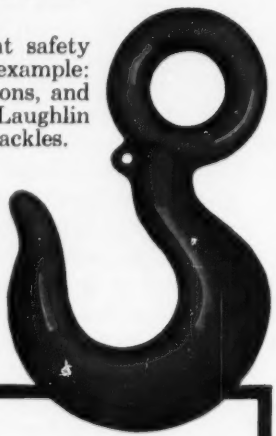
11902 East Slauson Avenue • Whittier, California

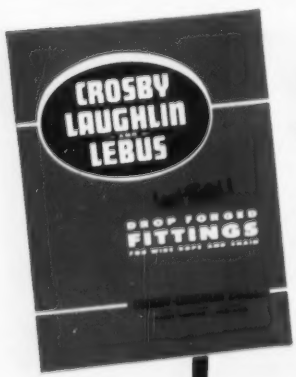
Order Fittings The Safe Way — By Capacity!

When you're ordering and using fittings you're only interested in capacity. Hook numbers or shackle sizes mean nothing as far as actual work-ability is concerned! That's why the revolutionary new Crosby-Laughlin* "Load Rated" Fittings line is now cataloged and identified by "safe working load" capacities.

That's not all! This revolutionary new "Load Rated" line offers important safety features. New metal alloys have greatly increased working capacities. For example: new Crosby-Laughlin "Load Rated" Hooks offer capacities from ¾ to 150 tons, and they're guaranteed against breakage . . . *forever;* size for size, new Crosby-Laughlin "Load Rated" Shackles offer *50% more* working capacities than common shackles.

You can be sure you're getting new Crosby-Laughlin "Load Rated" Fittings because they're painted red—the familiar color you've always seen on famous, dependable Crosby Wire Rope Clips and "Load Rated" Blocks. For safety's sake, order—and be sure you receive—the RED fittings that positively indentify *genuine* Crosby-Laughlin "Load Rated" and Lebus 100% Drop Forged products. It's the world's most complete line of drop forged fittings for wire rope and chain!





NEW CATALOG

LISTS COMPLETE LINE BY CAPACITIES!

You'll want this brand new Crosby-Laughlin-Lebus catalog to order your "Load Rated" fittings line. *More products—more data* are contained in this larger catalog that lists over 2000 items in the broad Crosby-Laughlin "Load Rated" line. You'll find detailed capacities, specifications and dimensional data on Crosby "Red U-Bolt"* Clips, Crosby "Load Rated" Blocks, Crosby-Laughlin "Load Rated" Fittings, Lebus Loadbinders and Snatchblocks. If you use any type of fittings for wire rope or chain, you'll want this new catalog—and the wide line it represents. It's free and available now at construction and industrial equipment distributors and at mill supply houses throughout the United States and Canada. Or, it's yours by writing direct to:

**Registered Trademark*

CROSBY-LAUGHLIN *Division*

FORT WAYNE 1, INDIANA

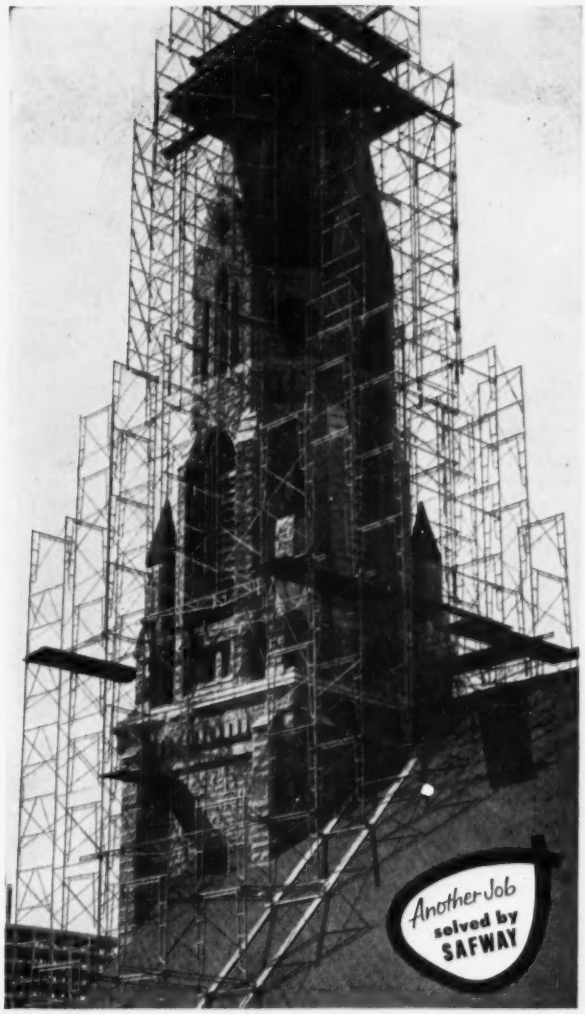
How to Scaffold a Tall Steeple from a Sloping Surface

FRAMES ARE 'STEPPED IN' TO FOLLOW STEEPLE CONTOUR

SCAFFOLDING a towering church steeple over a sloping roof is no routine problem. Yet *Safway scaffolding service* . . . using *standard* Safway equipment . . . offers a safe and easy solution, as demonstrated at St. Joseph's Catholic Church in Chicago.

Planned and erected by Safway's Chicago office, this scaffold helped contractors complete a tricky job *on schedule* . . . and *profitably.* Men and materials quickly moved up to platforms as high as 160 ft. At every level, plenty of elbow room with complete safety resulted in better, faster work.

Swivel base plates permit setting scaffold frames on the sloping roof. At upper levels, scaffolding is stepped inward as the steeple narrows, making it possible to locate workers close to the job—even between pilasters. Trussed "putlogs" span open areas between towers to provide support for upper level scaffolding with maximum efficiency and at lowest cost.



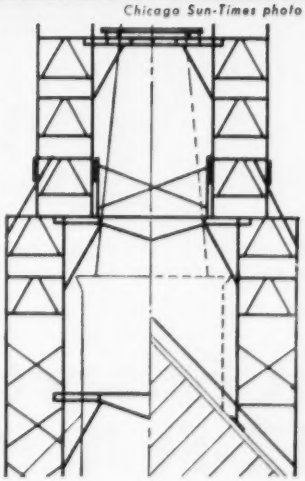
Chicago Sun-Times photo

SCAFFOLD 'STEPPED IN' AS STEEPLE TAPERS

This detail drawing shows how standard Safway frames and accessories are used in stepping back the scaffolding to follow the contours of the tapering church steeple.

The base scaffolding is built up partly from the ground and partly from the sloping roof. Swivel base plates adjust automatically to the roof angle. The base towers are spanned with trussed "putlogs."

The stepped-back scaffolding is supported on the horizontal putlogs by means of U-shaped saddle pins. Thus frames can be mounted at any points desired.



SAFWAY SERVICE CAN HELP YOU

Safway scaffolding helps you solve problems—save money *on EVERY job!* Large or small, difficult or routine, exterior or interior, construction or maintenance—experienced Safway engineers can scaffold your job for complete safety and convenience with economy.

Planning and erection service is offered by 135 Safway offices—including one *near you!* Ample stocks are available for sale or rental. Learn how you can benefit—get recommendations from Safway on your next job. There is no obligation.

Safway Scaffold Advantages

- **Safway offers the most complete scaffolding line. Parts for every construction problem are available *from stock.***
- **Safway frames are balanced for easy one-man handling—always important and vital when working in cramped quarters at great heights.**
- **Safway coupling pins, studs and wing nuts are still *the most trouble-free method of assembling scaffolding.* For fastest possible erection, Safway *Quick-Lock fasteners* are also available to permit attaching cross braces with one hand.**
- **Safway equipment is made from high carbon structural steel tubing . . . constructed by certified Master Welders . . . treated with rust inhibitor . . . finished inside and out in baked enamel.**
- **Safway *originated* tubular steel scaffolding . . . offers unequalled experience in its design and application.**

Write **FOR FREE BULLETIN**

Learn all about Safway scaffolding and the many advantages it can give you. Write today for your copy of the new Bulletin 112. If you don't know where your local Safway office is located, ask us to tell you.

SAFWAY
STEEL PRODUCTS, INC.
6243 W. State St., Milwaukee 13, Wis.

HIGH STEEL—Heavy steel members are hoisted nearly 300 ft as tower traveler nears completion of anchor arm. One land and two river bents support erection.

Giant Falsework Piers Support 852-Ft Anchor Arm

Huge erection loads are carried by complex bents and grillages at nation's longest highway cantilever bridge—across Mississippi at New Orleans.

LAND FALSEWORK—Loads greater than 2,000 tons are distributed through maze of grillages to delicate concrete frame of existing wharf on New Orleans shore.

RIVER FALSEWORK—One of two river bents is supported on special steel-frame piers resting on long H-piles. Opposite anchor arm is entirely over land.

A BRIDGE STEEL ERECTOR has one big advantage over a substructure contractor. The fruits of his labors are always exposed for everyone to see and appreciate, while the unfortunate foundation specialist buries his ingenuity under fathoms of water.

But on the new Mississippi River Bridge at New Orleans, a lot of the steel contractor's ingenuity also will be out of sight. Even though Bethlehem Steel Co. is completing the country's largest and most spectacular cantilever span, they have dismantled some of their best examples of skillful engineering—three massive and complicated falsework footings and drillages under the New Orleans arm.

To permit erection of the 852-ft anchor arm, two huge bents had to be built up from the depths of the river bottom, and another had to be erected over an existing wharf. A fourth footing of timber mud sills and steel grillage beams was located on shore.

At the wharf, loads greater than 2,000 tons had to be distributed over a relatively delicate concrete frame. And this required a maze of grillage beams. In the river, Bethlehem had to support the bents on rugged steel frames that rested on a vast network of accurately driven H-piles.

But despite the problems, the anchor arm went in ahead of schedule, the bents did their job, and adjacent structures were unharmed.

Bethlehem's $12-million job calls for the fabrication and erection of structural steel for a 1,575-ft center span flanked on the New Orleans side by an 853-ft anchor arm and on the Algiers side by a 591-ft anchor arm. The center span consists of a 689-ft suspended span, hinged to 443-ft cantilever arms on either side.

Although both anchor arms required falsework bents for erection, the problems were far more complex on the New Orleans side. Here, the 853-ft arm spans a large wharf area plus nearly 600 ft of the river, whereas the shorter arm on the opposite side is erected entirely over open land.

The wharf presented the first big problem. Its pile-supported frame and deck had to carry the tremendous loads imposed on the bent during erection. And the only way to do that was to spread the forces uniformly over a wide area of the deck.

The bent itself was massive. In fact, each leg consisted of a built-up member weighing 700 lb per ft. Its main strength came from three 36-in. 230-lb wide-flange beams. Below each leg the load was distributed through three levels of hefty grillage beams, then into six built-up girders (to be placed later in the bridge deck), and finally into five lines of double beams laid across the deck of the wharf.

Key problem was distributing the load uniformly so that none of the 30 wharf columns affected by the loading would be overstressed. To do this, Bethlehem engineers had to calculate the exact deflection at every contact point in the grillage. And each deflection had to be compensated for by a shim of the proper thickness. It was tedious and complicated work, but it permitted the wharf to carry the loads.

The grillage system had one additional purpose. It also housed huge hydraulic jacks with which vertical adjustments could be

continued on page 76

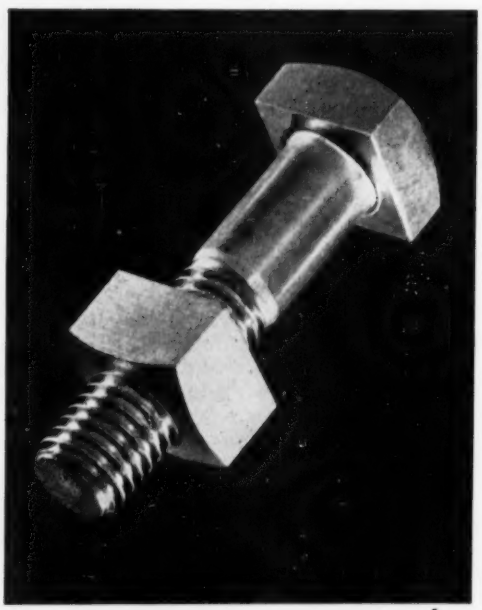
when new aluminum coating holds up so well

On galvanized structures, the rusting caused by atmospheric corrosion usually begins with the bolts and nuts. In time, this presents a serious maintenance problem. But now, at slight extra cost, you can obtain coated fasteners which are so rust-resistant that they outlast any other part of a galvanized structure. These fasteners are coated with Bethalume, Bethlehem's new aluminum coating.

The Bethalume hot-dip coating makes possible a much longer service life for fasteners by adding the corrosion resistance of aluminum to the strength of steel.

Bethalume coatings stand up especially well under "heat-corrosion," at lower cost than products customarily used. Moreover, the Bethalume coating is unusually uniform—not merely on the body of each bolt, but over the entire threaded portion as well, thus making possible threads which are clean and smooth-fitting.

We have a new illustrated booklet on the Bethalume coating, which describes its advantages in detail. If you would like to have a copy, just drop a line to the Bethlehem office nearest you.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Northwestern Engineering Co.'s D8 works fast

stockpiling hot mix material for 17 miles of road

You can see the hot mix material "flow" ahead of the blade in this picture—seven or eight tons of it at every pass. The Caterpillar D8 Tractor shown is equipped with a No. 8U Bulldozer. It's used in stockpiling 110,000 tons of base course material, 36,000 tons of hot mix and 7,000 tons of shoulder material—all of which will be used to surface 17 miles of new road near Newell, South Dakota.

This is one of the four D8s owned by Northwestern Engineering Co., Rapid City, S. D., on this project. In addition they have a CAT* No. 12 Motor Grader and two Caterpillar Engines powering the crusher. Superintendent Glenn H. Kistler says: "I've been operating Cat-built equipment for over thirty years, back to the days of the old Sixties, and have always had a preference for the big yellow machines."

Backed by the power and traction of the D8, the No. 8U Bulldozer is a big-capacity tool for handling any type of loose material. It's scientifically shaped to roll the load forward and *inward* with a minimum of side spillage. And it's ruggedly built to stand up under hard, steady work.

Your Caterpillar Dealer will gladly demonstrate the D8-No. 8U combination on your own job. You can count on him for reliable service and quality Caterpillar parts to keep your machines producing throughout their long work life.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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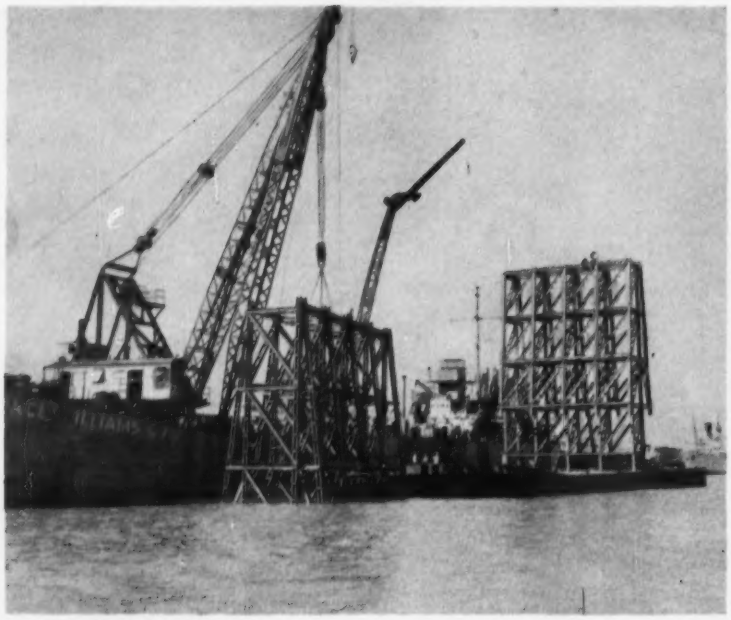
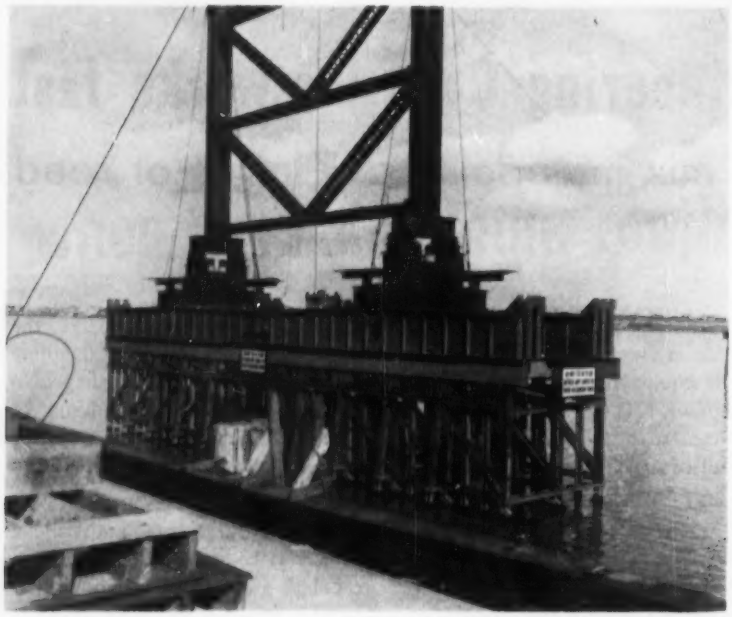
WANTED—
THE HARD WORK

GIANT FALSEWORK . . . continued from page 73

Steel-Frame Piers Support Falsework



SETTING FRAMES—Half of steel-frame pier is placed on river bottom where it serves first as templet for driving H-piles, then carries heavy falsework grillage.



GRILLAGE—Six girders, to be placed later in bridge deck, form bulk of grillage. To make vertical adjustments in bent, two 800-ton jacks are placed under each leg.

made in the falsework bent. Two 800-ton jacks were positioned under the top set of grillage beams at each leg. These were used to maintain desired deflections during erection and to land the span on the pier shoes.

The second falsework bent was of still heavier construction made up of three 35-in. wide-flange beams weighing 300 lbs per ft, or nearly 1,000 lbs per ft for each built-up column. This bent was used in two positions under the anchor arm, whereas the lighter bent was erected three times—first in back of the pier, then twice under the arm.

In the river, the two falsework bents and grillage essentially were the same as the one of the wharf except, of course, that the wide base layer of the grillage was not needed. Instead, the deck girders rested directly on special steel-frame piers.

Developed several years ago by Bethlehem engineers, these frames serve not only as piers but also as pile-driving templets. When a frame is positioned on the bed of the river, steel H-piles witha maximum length of 180 ft are driven through guides formed by the members of the frame. In this way the frame is positioned accurately, a strict requirement before building the bent.

The pile frame is supported independently on short columns extending about 5 ft into the soft mud of the river bottom. The four corner piles are then driven to the required penetration and carrying capacity, and the frame is adjusted to exact elevation and fastened to these four piles by a welded connection at the top of the frame. Serving as a guide for locating and driving piles, the frame also acts as a bracing system to transfer lateral wind loads from the base of the upper falsework bent to the river bottom because the piles themselves cannot carry such loads.

The heaviest bent was designed to carry a vertical load of 1,767 tons without wind and 2,424 tons with wind; the corresponding pile loads are 34 tons and 67 tons, the piles being only 80 ft long, in shallow water, with a penetration of about 52 ft.

At the deep-water bent, the river bottom elevation was minus 45 ft, and tip of the bent was at elevation plus 23 ft. Here, 40 piles 185 ft in length were driven with a penetration of 120 ft. These piles carried a vertical load without wind of 76 tons, and with wind a calculated possible load of 150 tons. The piles were 10-in. BP 57-lb sections. Actual pile load-settlement tests indicated the piles could carry this load without excessive settlement, and they did.

continued on page 80

DIG . . . TRAVEL *Anywhere*

with a fast, mobile LORAIN SP-107

DRAGLINE — Here a Lorain SP-107 with a 3/8-yd. dragline bucket mucks out channel bottom 1/2 mile from road.

Here's a new contractors' excavating tool with rubber-tire travel speed to get it where it's wanted—fast . . . yet, with the tractive effort, flotation and power usually associated only with crawler machines.

Whether for "handy-andy" use on big construction projects . . . or as the prime excavator on a residential basement, the agile, high-speed, 3/8-yd. Lorain SP-107 is designed to be a profit-making contractors' tool.

Take it where the jobs are, over city streets, highways or cross-country where the going can be rough. Move it in and go to work and see what this "powerhouse" can do for you. Here are some additional features of the "107" you'll want to know about:

- Torque converter power take-off gives it lots of hang on . . . won't give up on the tough jobs.
- With 3 or 6 travel speeds — up to 15 m.p.h. — the Lorain SP-107 is fast from job to job . . . fast around the job.
- The 4-wheel drive — and big tires take it easily over soft, rough ground.
- No outriggers needed . . . no fuss, no bother, no lost time . . . move in and go to work.
- Power steering and power brakes make the Lorain SP-107 easy, simple to handle.
- Hydraulic control of all clutches . . . the Lorain SP-107 is easy and fast to operate.

Your Thew-Lorain Distributor can show you how the Lorain SP-107 can be quickly converted for any kind of contractor's use. See him for details soon.

THE THEW SHOVEL CO., LORAIN, OHIO

HOE — This Lorain SP-107 hoe is digging a sewer trench through tough blue and yellow clay.

SHOVEL — The Lorain SP-107 is easily converted to a 3/8-yd. shovel.

THEW LORAIN

NEW HUSTLE FOR '58... CHEVY LIGHT,

More horsepower . . . more staying power in V8's and 6's!

New Chevrolet trucks bring you higher efficiency horsepower right up the line, including a revolutionary new V8 development for heavyweights. Here are engines designed to work for you . . . to save for you . . . to give you more power than ever before!

If you use light-duty trucks, there's new standard power in every '58 Chevy model . . . a more powerful (145-h.p.!) edition of the engine most famous for economy and dependability, the rugged Thriftmaster 6. And the optional (extra-cost) Trademaster V8 is *all new* and all set to go to work with 160 h.p., 283 cubic inches of displacement, short-stroke efficiency and weight-saving compactness.

Chevrolet for '58 is here with new medium- and heavy-duty power, too! Standard in Series 50 L.C.F. models is a new version of the Heavy-Duty Taskmaster V8, with plenty of power for fleet hauling and new durability features such as Stellite-faced exhaust valves and induction-hardened exhaust valve seats. Series 60 models provide the time-proved Jobmaster 6 with more power than

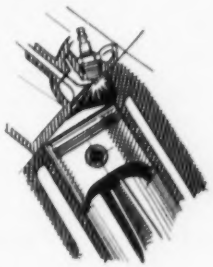
CHEVROLET **NEW CHEVROLET**

MEDIUM, AND HEAVY-DUTY HAULERS

ever—150 h.p.—and a host of new features that mean more economy and dependability on jobs that work a truck hard.

And Series 70 and 80 models come equipped with a big 175-h.p. Heavy-Duty Super Taskmaster V8 newly fitted out with a lineup of advanced, rugged components; this engine is designed to pull mammoth payloads with ease.

But that's not all! Series 90 and 100 models offer a *new kind* of big truck engine, the 230-h.p. Workmaster V8, with radical Wedge-Head design that develops high power and torque at fuel-saving low r.p.m. See your nearby Chevrolet dealer and *save* with Chevy's new brand of hustle! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

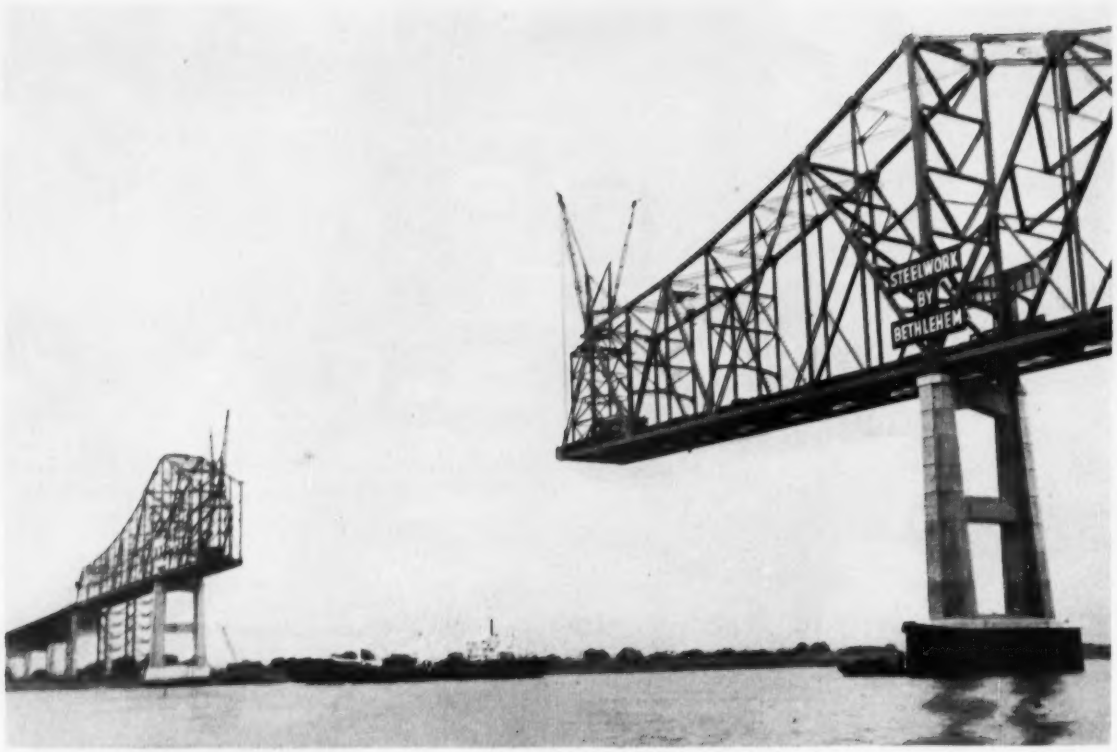


RADICAL NEW WEDGE-HEAD DESIGN

In the Workmaster V8, a new kind of combustion chamber gets *extra power* with top economy from regular grade fuel! Cylinder block is machined at 16-degree slant, pistons are of new "peaked" design.

Latest editions of the "Big Wheel" in trucks

TASK · FORCE 58 TRUCKS



CLOSING THE GAP—The 1,575-ft main span over the Mississippi River is erected by cantilevering from both ends. To reduce weight of tower travelers when erection nears center of span, hoists will be removed and pulled back to piers.

GIANT FALSEWORK PIERS . . . continued from page 76

Twin Tower Travelers Mounting Double Derricks

Erection of the anchor arms proceeded outward from both anchor piers at the same time. Crawler cranes first erected a falsework bent behind the anchor pier so that a tower traveler could be built. This meant that a lot of steel had to be erected before the first piece of bridge steel could be placed. But Bethlehem wanted to speed the job by having the tower traveler erected and ready to start work when the first permanent steel was received. The ordinary procedure would have been to erect the traveler on the first two panels of the anchor arm, supported on a bent. But this would have delayed erection several weeks.

The tower traveler is probably one of the largest ever built. And it has to be. The heaviest lifts are 93 tons, and some members must be placed nearly 360 ft above the water level. These are the extremes for which Bethlehem designed the traveler.

To complete the bridge as the traveler advances, Bethlehem mounted two stiffleg derricks on the tower. The one in front handles all the heavy lifts, and the one in the back fills in. With an 85-ft boom, the forward derrick can lift 115 tons at a 65-ft radius. The rear derrick has a 25-ton capacity.

The forward derrick is operated by an American three-drum hoist powered by a 200-hp diesel engine through a Twin-Disc torque converter. It produces a line pull of 20,000 lb at 200 fpm. The rear derrick is operated by a Lidgerwood hoist that has a 14,000-lb line pull at 150 fpm. Normally, these hoists are mounted inside the base of the traveler and move with it. But when the travelers approach the center of the span, the hoists will be anchored back on the bridge deck to reduce weight on the cantilevered structure.

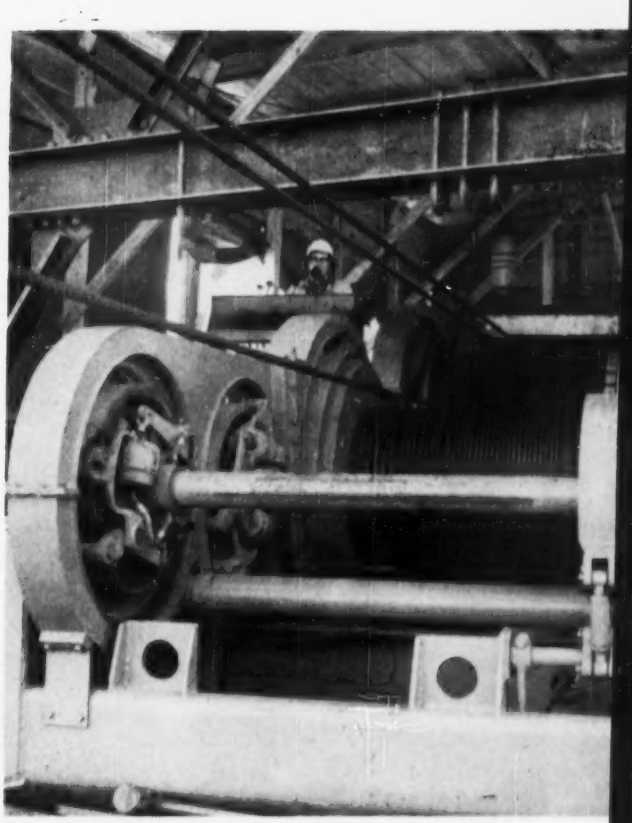
An additional advantage of the double derricks atop the traveler is the relative ease with which erection crews can handle the bulky packs of eye bars that are installed as top chords at the high point of the steel work. One derrick held connecting members while the eye bars were positioned with the other.

At present, both travelers have erected steel to the end of the cantilever spans and are ready to continue their advance. The central suspended span will be erected by cantilevering the full distance to the middle where the ends will be joined.

Actually, making the two ends meet is not as tricky as it would seem. There is no question of whether or not the last piece will fit. They make it fit. And they do it with a built-in jacking system.

Installed in each dummy chord at the ends of the suspended span are two 800-ton jacks. Operating at 8,000 psi, these jacks permit complete adjustment both vertically and horizontally of the ends of the cantilevers. Actually, they

STEEL HANDLING—Heavy member is lifted from barge by 115-ton forward derrick. Rear derrick with 25-ton capacity fills in.



MAIN HOIST—American three-drum hoist powered by 200-hp engine through Twin-Disc torque converter has 20,000-lb line pull.

Erect Entire Span

guide the two ends outward during erection at higher than final elevation, then lower them sufficiently at the middle to make the joint. And when the juncture is completed, the center section is converted to a suspended span, and the jacks are removed.

Personnel

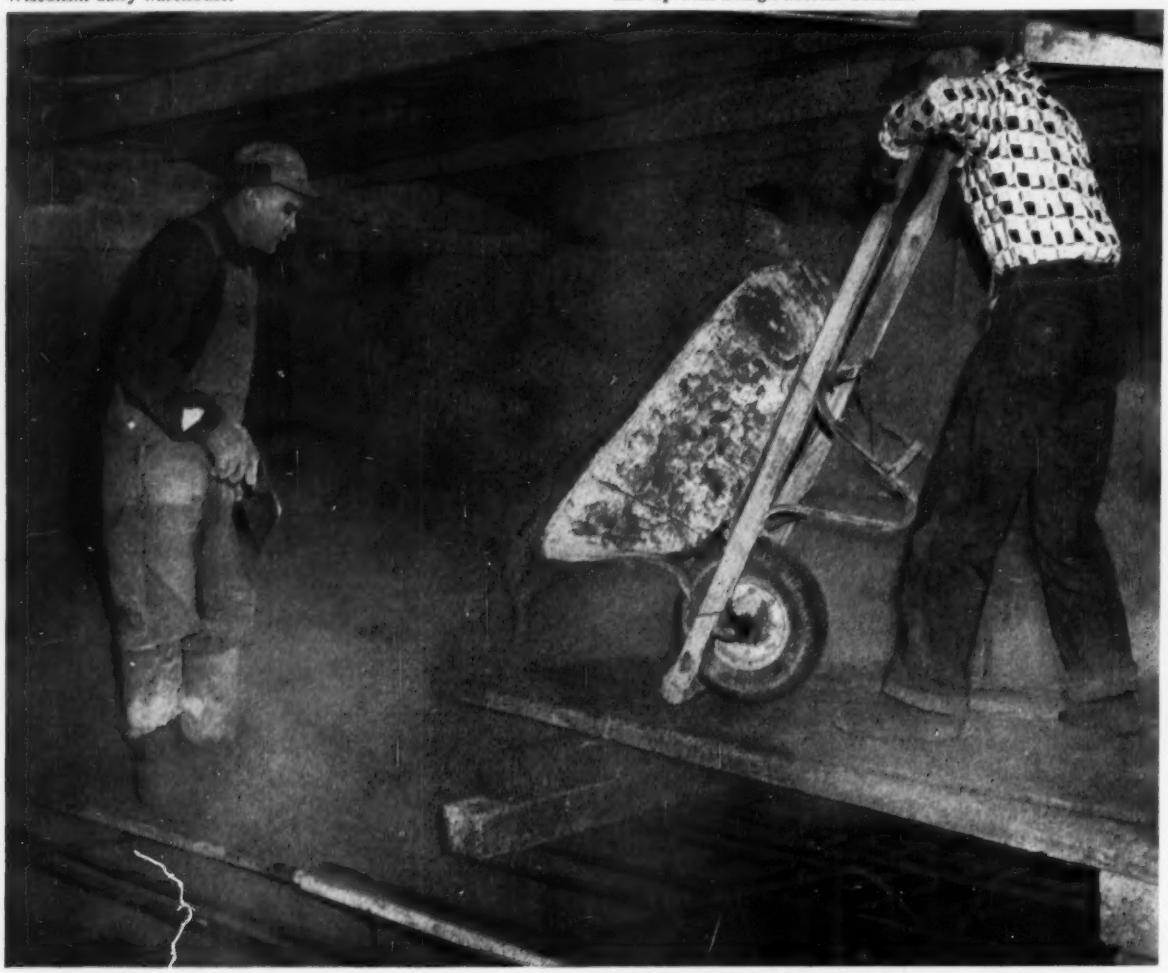
Neville Levy is chairman of the Mississippi River Bridge Authority. Otto F. Sorgenfrei is project engineer for Modjeski & Masters, consulting engineers.

Bethlehem Steel Co. is represented by Harry Hiscott, superintendent, and L. L. Feidler, resident engineer. The work is in direct charge of G. B. Shaw, Jr., manager of erection of Bethlehem's Pittsburgh District Erection Office. The scheme of erection and all erection equipment were designed in Bethlehem's main office by J. H. Wagner, general manager of erection, and E. L. Durkee, engineer of erection.

TRICKY CONNECTION—Heavy members are adjusted slightly by air winch to make tough connection near high point of span where eye bars frame into built-up members.

Placing 9" thick concrete second floor for this low-cost, fireproof, Wisconsin dairy warehouse.

Bottom photo.: Concrete block walls for this 140' x 90' building were laid up with Lehigh Mortar Cement.



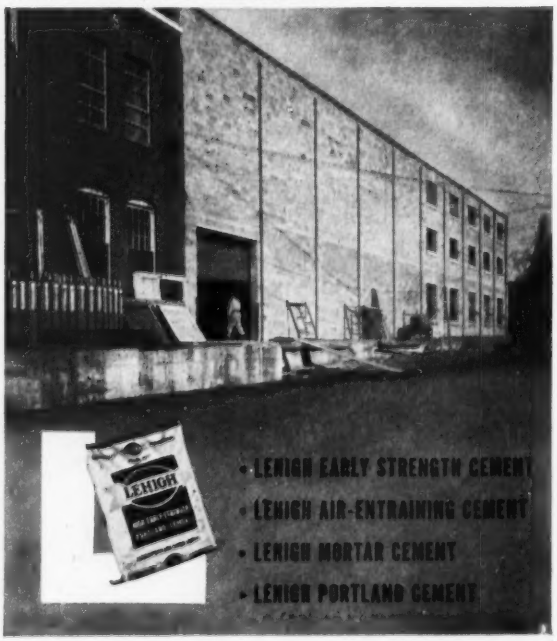
Owner: Sanna Dairies Inc., Menomonie, Wisconsin
Contractor: Stahr Company Inc., Minneapolis, Minnesota

LEHIGH EARLY STRENGTH CEMENT cuts **mid-winter** construction costs

This new warehouse was being built in Menomonie, Wisconsin just a year ago. Temperatures dropped to 15° below zero. To keep mid-winter construction costs down and have the job ready for the owner by early spring, Stahr Company Inc. used Lehigh Early Strength Cement.

The quick-curing concrete made with Lehigh Early Strength Cement enabled the contractor to cut form rental costs 30% and to reduce winter protection costs 50%. What's more, with less bleeding and earlier hardening of the early strength concrete, finishers' overtime was cut 50%.

Remember Lehigh Early Strength Cement when planning winter concrete work. On large jobs and small, chances are it will save *you* time and money.



LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA.

The No. 12's part in a good team job

The Caterpillar No. 12 Motor Grader is a key piece of equipment in efficient earthmoving. By leveling fill and building and maintaining haul roads, the No. 12 helps tractor-scraper rigs handle bigger loads in faster time.

The job pictured is at Fogelsville, Pa., where W. E. Johnson had a 231,000-yard contract, relocating nearly a mile of U. S. 22. Smooth haul roads maintained by the Cat* No. 12 Motor Grader allowed three Cat DW21s pulling No. 470 Scrapers to move 4,000-6,000 yards of dirt per day.

In Mr. Johnson's words: "We're Caterpillar people. We've had a lot of experience with Cat equipment and we know when we start a job we can count on finishing it with a minimum of down time."

Construction men everywhere regard the No. 12 Motor Grader as the standard in its field. It is ruggedly built for heavy, round-the-clock work. And its balanced design and dependable four-cycle Cat Engine make it a big producer. Operators like the fast, positive controls, easy blade positioning and unobstructed visibility from the seat. Most tire down time is eliminated by tubeless tires. The exclusive oil clutch operates for many hundreds of hours without adjustment. And in-cab starting, electric or gasoline, is standard.

Ask your Caterpillar Dealer for an on-the-job demonstration. He protects the long work life of the machines he sells with reliable parts and service.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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THE LATEST, MOST COMPLETE INFORMATION ON THE NEW HIGHWAY PROGRAM — FREE

Here in one booklet is *all* the latest information on the new highway program. Find out how, where and when the money will be spent; standards for the new freeways; final routes of the Interstate System. Everything you need to know to share in the greatest construction job in history.

Dept. CM&E-10, Caterpillar Tractor Co.
Peoria, Ill.

Please send me immediately ..... copies of "The Road Ahead."

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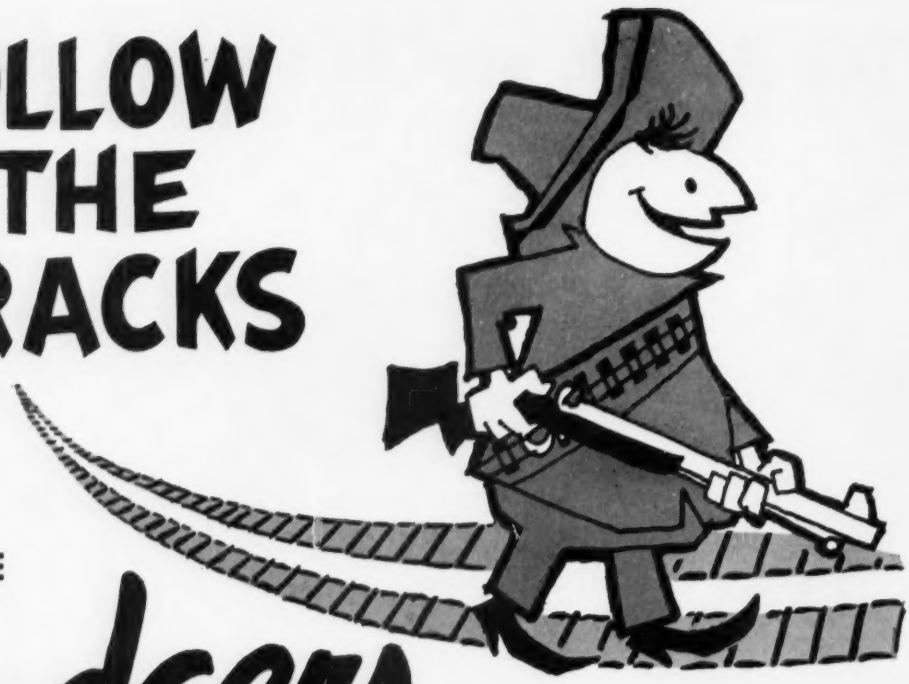
FOLLOW THE TRACKS



TO SEE

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TRACK PRESSES

for **1958**

Wait to see this *completely new '58 model press* that will service crawler tractor tracks *better* and *faster* than any other track press on the market today.

With this newest Rodgers press you will get such outstanding advantages and features as—increased production through faster working speeds, greater safety, less handling of track components, less operator fatigue. Faster controlled assembly of tracks that are flexible but accurately spaced with unbroached links will give longer service in the field.

Rodgers has pioneered in building track presses since 1932

Rodgers Hydraulic Inc.

7403 Walker Street • Minneapolis 26, Minnesota

HYDRAULICS Rodgers KEEP THE WORLD MOVING

1 **Barge-Mounted Gradall Dredges River**

2 **Loader Pours Concrete For Columns**

3 **Big Crawler Grades Backslopes**

4 **Rear Dumps Become Water Wagons**

Four contractors seeking solutions to tough problems discover that . . .

Adapted Rigs Handle New Jobs Successfully

Normally, it would be ridiculous to use equipment in ways never intended by the manufacturer. But every once in a while a smart contractor sees a spot where a standard rig can be adapted to perform a difficult job quickly and efficiently. Sometimes the adaptation works so well that the contractor's idea is picked up by a manufacturer and sooner or later the unorthodox machine becomes a standard item at equipment dealers. Here are four machines, adapted by four contractors, to perform jobs that conventional equipment could not handle. They worked out just fine.

1 Gradall On Barge Dredges River

A GRADALL mounted on a barge solved three big problems for a Canadian contractor dredging the silt-clogged channel of Toronto's Don River.

The problems facing contractor Lester Rawding of Toronto were: (1) how to get dredging equipment to the job economically; (2) how to work along banks lined with obstacles; and (3) how to dredge under low bridges that crossed the river in the dredging area.

At first glance the project looked like a routine job that could be handled either with conventional barge-mounted equipment or with a big dragline working from the bank. But dredging equipment was not available in the area and transportation costs to bring it in would cut into profits. The dragline was ruled out because trees lined all but about 20% of the bank on one side of the river and railroad lines and high tension wires lined the other bank.

JACK OF ALL TRADES—Gradall with its carrier removed dredges Toronto's Don River while another cleans up. Gradall bucket served as a huge oar to propel barge down river.

Another reason that neither a dragline nor conventional barge-mounted dredging equipment could do the job was that four bridges, all with only 8 ft of clearance, crossed the river in the dredging area.

A barge-mounted Gradall

ADAPTED RIGS . . .
continued

solved all three problems and provided a bonus—when it became necessary to move the barge, the Gradall operator simply used the machine's telescoping boom as a huge oar. First he would swing to the right of the barge and dip the boom down, tilting it so that the bucket would catch in the water. As he swung the Gradall on the deck of the barge, the boom pushed through the water and propelled the barge forward. The operator lifted the boom as it reached the end of the barge, swung it over to the left side, and repeated the operation.

To bring the river bed to a depth of 8 ft, which meant that 33,000 yd of silt had to be excavated, Rawding removed the Gradall's rubber-tired carrier and mounted the machine directly on the deck of the barge. Along the edges of the river, the Gradall dredged up silt and placed it on the bank between trees where it was picked up by a second Gradall and loaded into trucks. The hydraulically operated telescopic boom of the Gradall enabled the operator to reach between the closely spaced trees without damaging them.

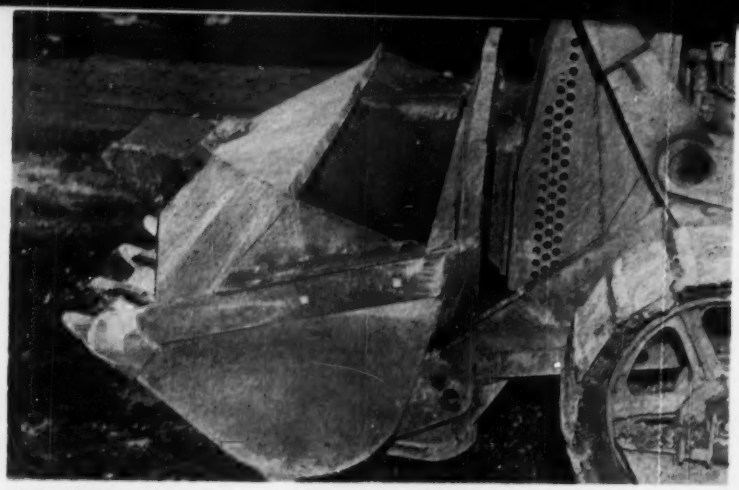
"I don't know of any other type of equipment that could have handled the job," says Rawding.

Averaged 1,000 yd Daily

When the barge was working near the middle of the 100-ft wide river, Rawding drove another Gradall — carrier and all — onto the barge and both machines loaded silt into a bottom-dump scow. When filled to its 250-yd capacity, the scow was hauled out into Lake Ontario and unloaded. Under these conditions, the two Gradalls dredged an average of 1,000 yd a day.

When the barge was working under bridges, only the carrierless Gradall was on the barge. Without the carrier, the machine was only 6½ ft above the deck. When the barge was pumped full of water so that the deck was just a few inches above water level, the machine had the clearance it needed to work effectively under the bridges.

The project, which also included building up the river banks, was completed by Rawding in 30 days.



FITS SNUGLY—Steel plate insert slides inside regular Skid-Shovel bucket. The 1½-yd insert, fabricated at a cost of $162, can be removed from the bucket in 5 min.

POURS COLUMNS—When mud prevented mixer trucks from getting close to forms, International Drott TD-9 Skid-Shovel with bucket insert poured 9-ft high concrete columns.

2 Loader Pours Concrete

A CRAWLER-MOUNTED loader equipped with a homemade bucket insert pours concrete into column forms when mixer trucks bog down in soft ground trying to get close enough.

J. C. Goddard, general superintendent for Johnson-Gaylon, Knoxville, Tenn., contractors, designed the insert for the bucket of an International Drott TD-9 Skid-Shovel. It is pouring 20-in. square, 9-ft high columns for a $400,000 industrial plant addition under construction at Jefferson City, Tenn.

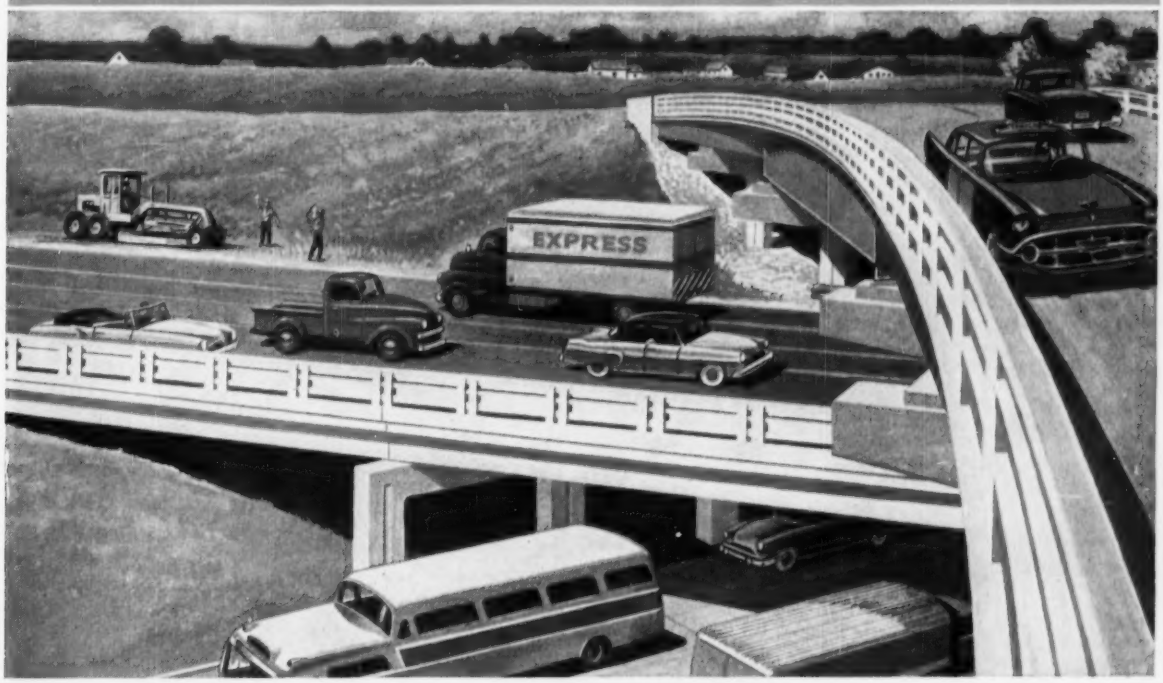
Reasoning that a crawler tractor would easily overcome the muddy terrain, Goddard had the insert fabricated from ⅛-in. steel plate to almost the exact shape of the standard 1½-yd TD-9 bucket. It takes two men about 5 min to install or remove the insert, which is fastened by two bolts on each side of the bucket.

The insert receives concrete from mixer trucks and discharges it into forms through a pouring trough built into the front of the rig. The back of the insert is open so that loading operations can be checked easily.

The Skid-Shovel with the bucket insert can transport and pour faster and more economically than a crane with a regular concrete bucket, according to Goddard. Total cost of the insert, including material and labor, was only $162.

continued on page 89

FRAM Filtronic® AIR FILTERS give lowest cost per mile



Change over old type air filters with this new 99.+% efficient FRAM *Filtronic* Universal Air Filter

- Installed quickly and easily
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- Exclusive, FRAM patented, built-in gasket forms a perfect air-tight seal
- Easy to service and change—only one universal cartridge needed for your entire fleet
- For all engines having a maximum air flow range of 300-350 CFM

Now you can replace obsolete air cleaners with FRAM *Filtronic* Universal Air Filters—the filter that's 99.+% efficient! Exhaustive laboratory and road tests prove that FRAM *Filtronic* Air Filters give the best protection under tough operating conditions. That's because FRAM's exclusive, patented, built-in gasket absolutely prevents by-passing of dirty air. *All air must pass through the most efficient filtering material ever produced.*

So cut down-time and maintenance costs—convert now to the air filter that's already original equipment on many great engines—the FRAM *Filtronic* Air Filter.

FRAM Corporation, Providence 16, R.I.
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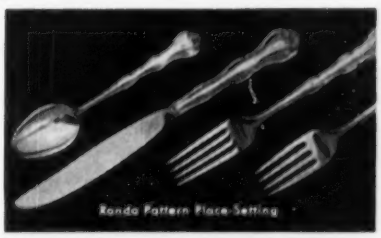
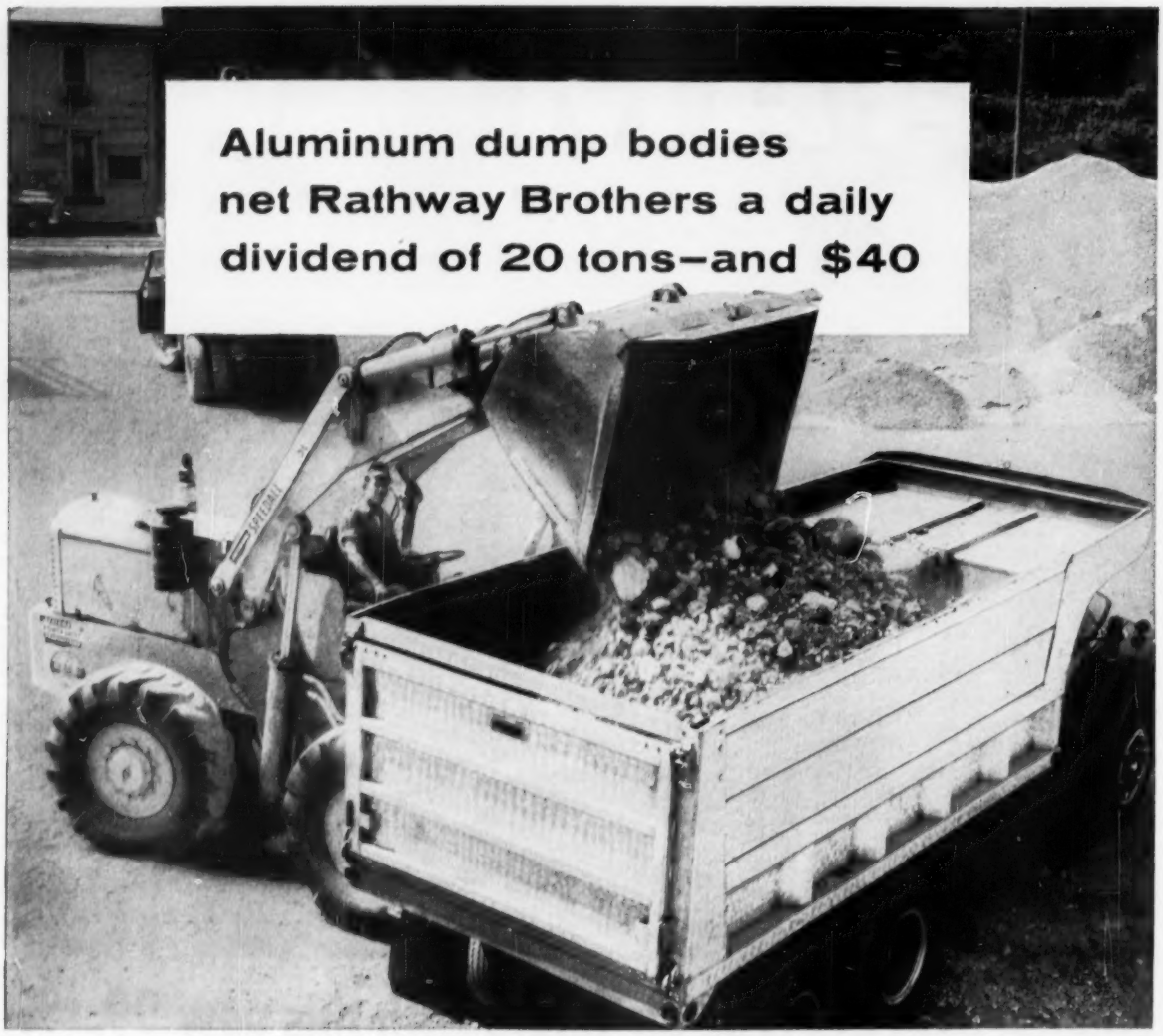
FRAM FILTERS



Gorham sterling silver offer extended to fleets!

Now, FRAM extends the offer the whole industry is talking about—genuine solid sterling silver by Gorham—to you! Sterling silver that sells for $24.00 a place-setting at leading jewelers is made available at a fraction of its cost with FRAM merchandise. This is possible only because FRAM and your FRAM supplier are absorbing a substantial portion of the cost. See your FRAM supplier or write today!



Because aluminum dump bodies trim vehicle weight from 16,800 pounds to 14,800 pounds, Rathway Brothers of Perryopolis, Pa., gain capacity for an extra ton of coal or slag on every load. With four units, each making five trips per day and earning $2 per ton, that payload bonus adds up to $40 of extra profit daily.

When rigs return empty, reduced dead weight is reflected in 10 per cent increases in tire and gas mileage. Rathway considers that every tenth tire and gallon of gas is practically free—another bonus for using aluminum.

Rugged Alcoa® Aluminum alloys used by Penn Body Division of Hockensmith Corporation, Penn, Pa. for Rathway bodies also increase profits through longer equipment life and lower maintenance requirements. Aluminum defies rust and corrosion without the need for painting. Because of the far greater impact resistance of aluminum, severe denting often experienced in bucket loading is virtually eliminated. Finally, a clean-up job on an aluminum body takes only half the time normally required.

Thirteen leading manufacturers are ready to bring you all these advantages by fabricating dump bodies of Alcoa Aluminum to your specifications, or by supplying economical standard designs. For more information on dump bodies and the name of the manufacturer nearest you, write Aluminum Company of America, 1879-M Alcoa Building, Pittsburgh 19, Pa.

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"ALCOA THEATRE"
Exciting Adventure
ALTERNATE MONDAY EVENINGS

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Your Guide to the Best in Aluminum Value

CUTS TO GRADE—Contractor-designed backslope attachment mounted on Cat D9 crawler handles fine grading on rocky slopes.

EASILY ADJUSTABLE—Four slope settings—½:1, ¾:1, 1:1, and 1½:1—are available by changing pin in telescopic brace.

3 ADAPTED RIGS . . . continued

Big Crawler Grades Backslopes

A CUTTING EDGE mounted at the side of a big Caterpillar D9 crawler tractor is just the tool for grading backslopes in rocky soils too tough for motor graders.

The bank-cutting tool is the brainchild of Stecker and Scott, Burbank, Calif., contractors. It was built to their specifications by Peterson Tractor Co., Caterpillar distributor in San Leandro, Calif., for $2,500.

The working edge of the back-sloping bar is a standard 6½-ft dozer cutting edge. It is mounted on a heavy steel box frame attached to the left draft arm of the crawler's hydraulically tilted dozer. Because the dozer arm tilts, the operator can keep the blade level on the bank despite varying ground conditions.

The box frame is hinged at two points on the left dozer draft arm —immediately behind the blade and about 7 ft back. The rear member of the frame angles forward to support the outer end of the bar, and a telescoping pipe from the end of the bar to the top of the dozer blade serves as an additional brace. Simply by changing the pin in the telescoping brace, the slope angle can be set at ½:1, ¾:1, 1:1, or 1½:1. With the dozer in the raised position, the cutting edge can reach banks 10 ft high.

When grading slopes the tractor is operated in first gear so that the operator maintains close control over the blade. Chuck Bode, Stecker and Scott project superintendent, says the 58,745-lb crawler has the power to force the bar through the toughest soils. The attachment has been working on various Stecker and Scott jobs for a year without the need for major repairs or parts replacement.

Typical of the tool's usefulness was its application on a road job near Roseville, Calif. After Bode discovered that slopes contained too much rock for Stecker and Scott's biggest motor grader, he called in a 28-ton ripper to break up the soil for loading. This worked pretty well, but it took two D9's to push and pull the huge ripper.

Then the D9 with the back-sloping attachment became available. It handles the rugged grading job in one pass, requiring only a final clean-up pass by a motor grader.

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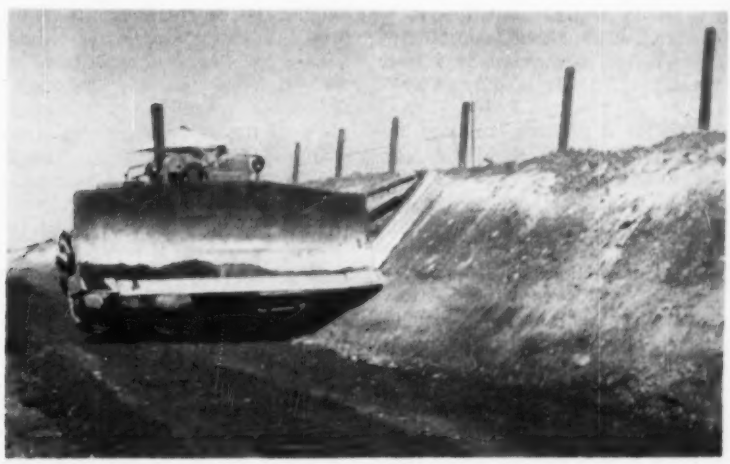


STAYS STEADY—Despite changing ground conditions, operator keeps blade steady on the cut because attachment is mounted on dozer arm that can be tilted hydraulically.

SPREADS FAST—A big International 75 Paywagon converted into a water carrier races along Texas air base discharging its load at rate of 20,000 gal per hr.

LOADS QUICKLY—One of Terra's two converted bottom dumps receives water through a 10-in. pipe. Units are loaded in 5 min, spread 5,418-gal loads in 10 min.

4 **ADAPTED RIGS . . .** continued

Bottom Dumps Become Water Wagons

SAME CONTROL—Valve that activated bottom-dump doors controls water flow.

BOTTOM DUMPS converted into water wagons that spray 40,000 gal per hr enable a contractor to compact bone-dry desert fill to 95% of its original density.

Terra Construction Co. of Great Bend, Kans., converted two International 75 bottom-dump Paywagons, each with a 5,418-gal capacity, for a grading contract at the Amarillo, Tex., Strategic Air Command Base.

The Paywagons keep pace with a spread of eight International 75 Payscrapers that is shifting 25,000 yd of parched desert soil on a 20-hr daily schedule. Altogether they will move 4,000,000 yd to form a tapering fill that reaches a height of 20 ft at one end of a 13,500-ft runway.

The contractor says the converted bottom dumps hold more water and offer higher speeds and better traction on the soft fill than highway-type water trucks. Another advantage is that they can be reconverted to bottom dumps when their job is completed.

To turn a truck into a water wagon, Terra removes the bottom-dump section and welds 3/16-gage steel plate to form a watertight bottom for the tank. Sides are reinforced with steel plate of the same thickness, and a top cover is welded in place.

The operator uses the same air-actuated valve that formerly controlled the bottom-dump unit to distribute water. It now operates a gate valve mounted on the rear end of the tank to control the water flow through a spray bar. The bar, which has a ground clearance of 2 ft, has fifteen 1½-in. nozzles. It takes only 10 min to spread 5,418 gal of water on the fill. The wagons are loaded in 5 min through a 10-in. dia pipe connected to a conveniently located water tank.

NEW
MOTOROLA
DUAL-SQUELCH
PRIVATE-LINE
2-WAY RADIO...

silences all channel traffic except your own messages

PRIVATE-LINE radiophone is now available in T-POWER (shown above), which features a completely transistorized power supply, as well as TWIN-V radio with 6/12 volt operation.

Get the complete facts about this startling new type of 2-way radio. Write today for these 2 new folders on PRIVATE-LINE radiophone.

Now, with the new Dual-Squelch PRIVATE-LINE radio, you get all the benefits of improved PRIVATE-LINE operation . . . *plus* easy integration for mixed fleets and monitor-before-transmit.

Because PRIVATE-LINE radio is quiet except when receiving a call from another radio in your own system, you eliminate all the "channel chatter." It's much like having the frequency all to yourself. You benefit by reducing the number of missed or misunderstood messages . . . operator fatigue is reduced . . . overall efficiency is increased.

Dual-Squelch PRIVATE-LINE radio gives you these basic features . . . and more. Now you can make a gradual changeover to PRIVATE-LINE operation. During the transition period, your messages can be received by both Motorola conventional and PRIVATE-LINE radios. No longer is it necessary to make the complete changeover to PRIVATE-LINE operation at the same time. And with the new Dual-Squelch operation, you can have manual selection or optional automatic monitoring of the channel before transmitting.

Before you select your 2-way radio, you'll want to investigate Motorola Dual-Squelch PRIVATE-LINE radio.

MOTOROLA PRIVATE-LINE RADIOPHONE

MOTOROLA Communications & Electronics, Inc., A Subsidiary of Motorola, Inc., 4501 Augusta Boulevard, Chicago 51, Illinois

To speed laying of a 4,500-ft pipeline . . .

Dredge Strips Swamp Muck,

SHALLOW-DRAFT DREDGE—With a draft of only 3½ ft, dredge is ideal for work in swamps. It is powered by Allis-Chalmers generator operated by General Motors diesel.

A SHALLOW-DRAFT hydraulic dredge saved a lot of time and money on the laying of a big sewer line across a tidal swamp at South River, N.J. It replaced conventional sheet-pile trenching methods, chopped nearly a year from the tight schedule, and saved the Middlesex County Sanitary Authority well over $1 million.

The job involved the laying of an 84-in. reinforced concrete pipe across a 4,500-ft wide swamp. Part of one contract in a vast trunk sewer and treatment project the section across the swamp was designed originally to be laid in a sheeted trench. And that was how it was bid by the contractor, Verona Construction Co., Verona, N.J. But later in the job it became clear to the contractor that conventional methods would not only boost the costs far beyond estimates but would also extend the life of the job by nearly a year.

Instead of going ahead, Verona offered an alternate plan to the authority. They suggested bringing in a dredge that could strip the thick overlying mat of muck along the pipe's centerline, then backfill the excavation with sand to make a solid work area across the swamp. An adjacent borrow pit right under the swamp could supply sand to the dredge.

DISCHARGE LINE—While dredge cuts 200-ft wide trough across swamp, muck is carried through 18-in. floating discharge line to spilling barge. Long-boom barge suspends end of pipeline over dikes of spoil area, eliminating line changes.

Backfills Sand for Work Area

With this method they knew they could operate a large fleet of equipment on the sand without difficulty. And they knew they could lay about eight times as much pipe every day. Otherwise they figured they would have to build a temporary road over the unstable area, operate the rigs on mats, and proceed at a snail's pace across the swamp.

In agreement with the plan, the Authority negotiated a special price with the contractor calling for a certain maximum lump sum to be paid for dredging out the muck and backfilling with sand. The Authority felt that the method would not only cut cost and time, but also offered the additional advantage of providing a wide sandly foundation in which a future pipeline could be laid.

To get the job rolling, Verona subbed the dredging to Missouri Valley Dredging Co. of Omaha, Neb. Missouri's new shallow-draft dredge, the Baldwin, had just completed work on Long Island and was available to be moved to South River. This 18-in. cutterhead hydraulic dredge had been designed and built by the contractor specifically to operate in the swamps and marshes of the New York metropolitan area, and its 3½-ft draft proved ideal on this type work.

continued on page 96

PIPE HANDLING—Caterpillar D7 tractor with side boom quickly handles lengths of dredge discharge line on hydraulic fill. Simple slip-in joints are made easily.

GRAVITY-DUMP eliminates slow-acting body-hoists

There are no complicated mechanical body-hoists to slow up haul cycles — no expensive hoist replacement parts, maintenance or costly hoist down-time when you haul with Koehring Dumptor. *It has no body-hoist.* Operator trips the body-release lever, and *gravity* tilts the 6-yard body, dumps load instantly.

You get this one-second dumping action *every time,* under heaviest loads, in all temperature extremes, because *gravity-dump* never balks, never wears out. You gain an important production advantage, too. Saving 15 to 25 seconds on every dump adds up to a substantial increase in extra yards hauled per hour. For example —

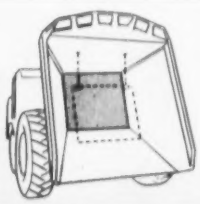
Increases output 9%

Take a typical 1,000-foot haul, where an ordinary dump truck would make 16 trips an hour. Allowing the same time to load, haul and return, Koehring Dumptor would average 17½ trips on the same cycle. That's because one-second dumping saves an average of 20 seconds dump-time on each trip — gains a total of 5.3 minutes more productive haul-time per hour. This is typical of Koehring Dumptor's basic principle — to reduce non-productive time to a minimum — and increase *work-time* for more yards per day.

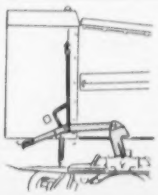
What's more, Dumptor *no-turn shuttle hauling* cuts another 15 to 30 seconds off cycle time. It operates at same speeds in either direction, travels round trip without turning. Call Koehring distributor *now.*

KOEHRING
DIVISION OF KOEHRING COMPANY
Milwaukee 16, Wisconsin

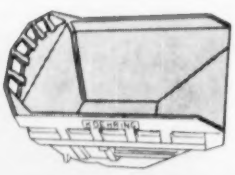
When dumping sticky materials, free-swinging kick-out pan breaks load suction. Pan bolts to floor, gives extra protection when loading rock.



Body latch for gravity-dump is simple and trouble-free. It's engaged by a single hook mounted on chassis. Handy dump lever is inside cab.



There are no bulges or ledges inside the streamlined, all-steel body. Top edge is box beam construction — sides and ends are rib-reinforced.



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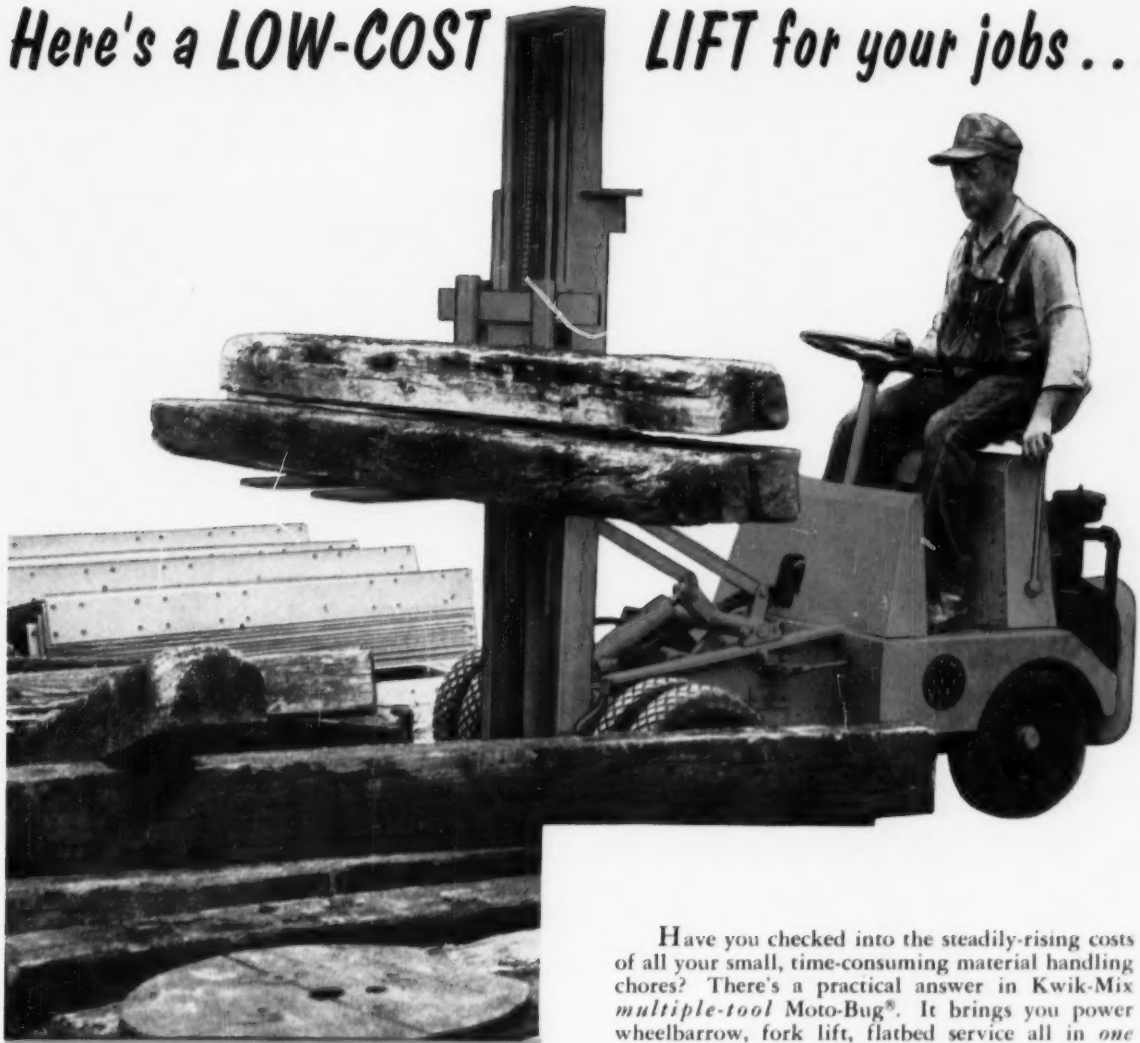

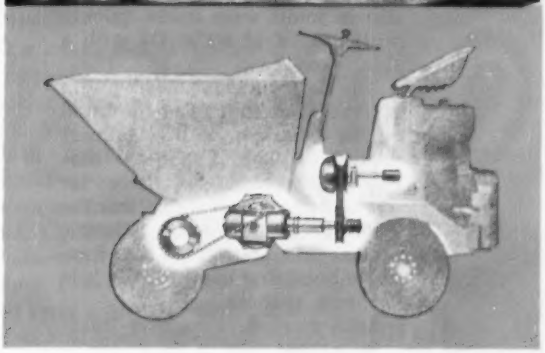

NO CLUTCHING — NO SHIFTING — Big R-15 Moto-Bug now has *automatic power-flow* transmission. All travel is controlled by foot accelerator. You get low speed with high engine torque when maximum pulling power is needed — plus infinite, *smooth* speed changes up to 12 m.p.h. Just set directional travel lever into forward or reverse — step on the accelerator — and go.

Have you checked into the steadily-rising costs of all your small, time-consuming material handling chores? There's a practical answer in Kwik-Mix *multiple-tool* Moto-Bug®. It brings you power wheelbarrow, fork lift, flatbed service all in *one* low-cost, interchangeable unit that hauls, lifts, loads, unloads and stacks all kinds of materials and supplies. Big 4-wheel R-15 Moto-Bug with fork lift attachment handles 1500 pounds, at 15-inch load center, and 7-foot height. Forks are 24 or 30 inches long, adjustable 6 to 32 inches wide for pallets, barrels, crates. Hydraulic power raises and lowers the load — tilts the mast 2° forward, 10° back for load pick-up, carry, and release. Gravity-dump hopper body converts the R-15 Moto-Bug into a big-capacity power wheelbarrow. It carries up to 2000 pounds of any bulk materials in 15 or 18 cubic foot hopper. Change to 4½-foot platform, and you have a heavy-duty 1-ton truck. What's more, there's 780 lbs. of drawbar pull for towing wagons or carts. A smaller model S-10 with multiple attachments is also available. Better check into Moto-Bug now. Ask Kwik-Mix distributor for a demonstration on your work — or write us today for more details.

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KM607

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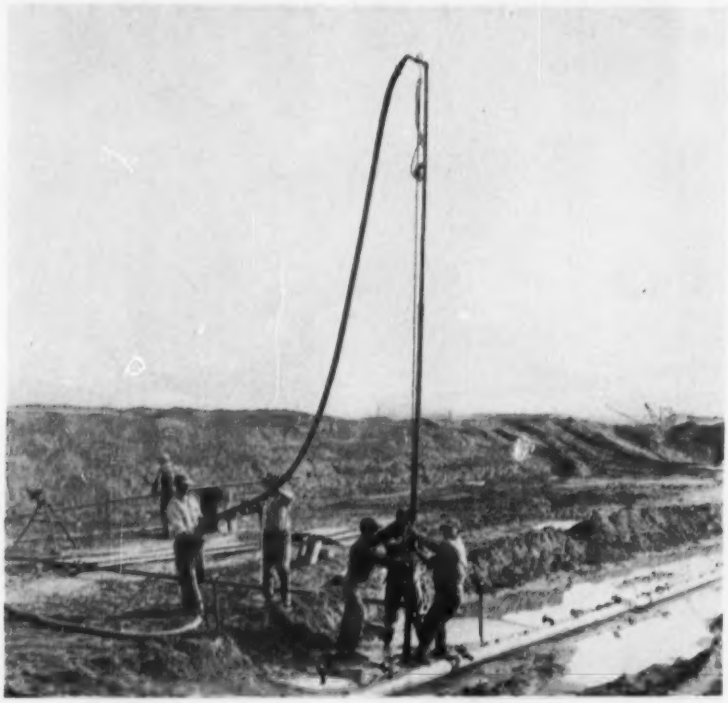


SINKING WELLPOINTS—Moretrench wellpoint 25 ft long is jetted into sand backfill. Chain device coiled around end of point produces 8-in. hole. Chain is reused.

INITIAL TRENCHING—Working between wellpoints, Bucyrus-Erie dragline removes first 5 ft of trench, also provides working area for backhoe which completes trench.

The Baldwin was moved into the South River area from a shallow river that bisects the swamp. From this point it worked north to one bank of the swamp, then reversed its direction and advanced to the opposite bank. The powerful rig cut a trough that measured nearly 200 ft wide on top and more than 100 ft at the bottom. Ranging in depth from 15 to 25 ft, muck overlaid a stable foundation of clay or sand.

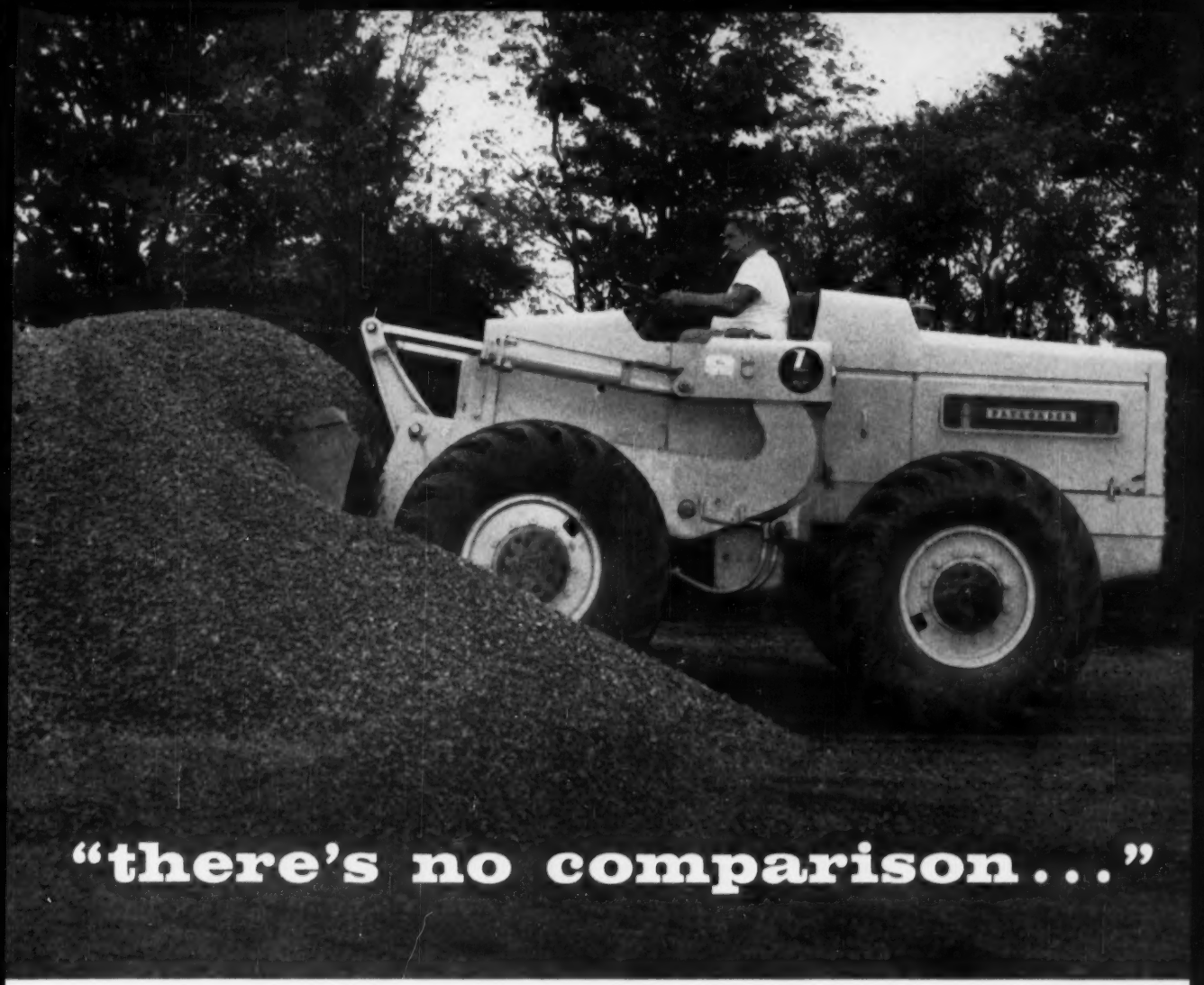
Working round the clock, the Baldwin pumped about 5,000 yd of muck a day into large diked spoil areas in the swamp alongside the trough. Pumped material was carried through a floating discharge line to a spilling barge. This derrick-equipped rig handled the right-angle bend of the pipeline and also suspended the end of the discharge line over the spoil-area dikes. It moved along behind the dredge, eliminating the need for constant changing of the discharge line.

On the sand backfill work, the dredge operated with a discharge line up to 2,750 ft long. The floating section of the line consisted of 40 ft lengths of pipe each mounted on a pair of pontoons in such a way that about 5 ft of each end projected beyond the pontoons to facilitate jointing. Ball and socket joints were made easily. A simple barge hoist handled all changing of pipe in the floating section.

On the fill, pipes with simple slip-in joints were made quickly with the aid of a Cat D7 with a side boom.

The Baldwin was powered with a General Motors 1,500-hp diesel engine driving on Allis-Chalmers generator. The big 16-cyl machine generated electricity for five motors, one of which was the 1,000-hp pump motor. Electric motors also powered the five-drum hoist that operated the ladder and anchors.

Like most dredges, the Baldwin walked like a duck on its two rear spuds. It moved anchors ahead every 50 ft with 65-ft side booms. However, unlike most dredges, the Baldwin was designed so that booms could be operated without power. The key was in the placing of the pivot point at the base of each boom. By locating it a few inches from the centerline of the mast, the designers provided enough unbalanced force to swing the boom



"there's no comparison..."

"Our model HH 'PAYLOADER' handles an average of 100 tons per hour working a 50 foot radius loading the bins at our asphalt plant," says C. A. Pratt, plant manager of Osborne, Inc., Mentor, Ohio, who also use it on highway construction. "It has our larger, heavier loader beat in all these features — ease of operation, operator safety and work-ability. There's no comparison."

G. C. Balish, the operator, says "it's built for maximum production. The roll-back bucket action is the best of any loader I've ever operated — gets a full payload every time and keeps a full load during delivery . . has maximum operator safety and operating ease. I prefer the HH any day."

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12-B-1

LAYING PIPE—Length of Lock Joint 84-in. pipe is lowered into trench by Manitowoc 3900 crane. Northwest 2½-yd backhoe excavates trench, dumps material directly behind where a dragline picks it up and casts it onto protective dikes.

DREDGE STRIPS SWAMP . . . continued

forward as soon as it hoisted the anchor from the bottom. Restraining lines were set so that the boom would swing just far enough to move the anchor ahead about 50 ft.

Close coordination among dredge and pipe crews completed the excavation and backfilling in a short time. Motorola radios were set up in the pilot house, in the pickup trucks, and in a sled-mounted shack on the fill.

As soon as sufficient backfill was in place, Verona moved in a big fleet of equipment to begin laying pipe. The job still was no cinch. The flow line of the pipe was about 20 ft below the grade of the swamp, or about at the bottom of the sand backfill.

Verona's job involved a long series of operations to prepare the fill, lay the pipe, and backfill. The vanguard of the big fleet was a Caterpillar D9. This king-size dozer attacked the mound of sand right behind the discharging end of the dredge pipe, cutting a trough through the center of the fill, and pushing up dikes to protect the job against a 5-ft tide.

Behind the D9 a crew of men advanced two lines of Moretrench wellpoints, one on each side of the trench. Each line ran up to 1,000 ft long and consisted of 25-ft deep points placed from 4 to 6 ft apart. Operated by two 8-in. pumps, the system lowered the water table about 22 feet. According to Verona, one of the keys to the operation was proper jetting of points. With a jet chain device coiled around the end of the point being jetted, an 8-in. hole was sunk. And backfilling this large hole with coarse sand greatly improved the efficiency of the well pointing.

Working between the lines of points was a Bucyrus-Erie dragline that excavated the next 5 ft of sand, casting it on to the dikes. And several hundred feet back was the main cluster of equipment that completed the operation. The remaining 12-ft depth of the 20-ft trench was excavated by a Northwest 2½-yd backhoe. However it was not large enough to swing its loads over the outer line of points to the dike. Instead, it swung 180 deg, dumping directly behind it, where a dragline picked up the material and recast it on to the dike. Verona could have excavated the trench entirely with one large dragline, but they preferred to work with a backhoe because it maintains better control of the trench.

When enough trench was excavated for a length of pipe, a small clamshell located on the road that paralleled the pipe placed a 1-ft thick bed of crushed stone in the bottom of the trench. Hauled to the site on trailers and rolled into hoisting position by a dozer, the 23-ton sections of 16-ft Lock Joint pipe were handled by a Manitowoc 3900 crane. With a double cable sling, the crane lowered the pipe in place, where it was pulled home with a come-a-long. Final operation was backfilling the trench by dozer.

With such an excellent working area, the contractor laid up to 140 ft of pipe a day.

Vincent Cestone was superintendent for Verona Construction Co. and Raymond Henry was superintendent for Missouri Valley Dredging Co. Representing the consultant, C. J. Kupper, was Howard Patton.

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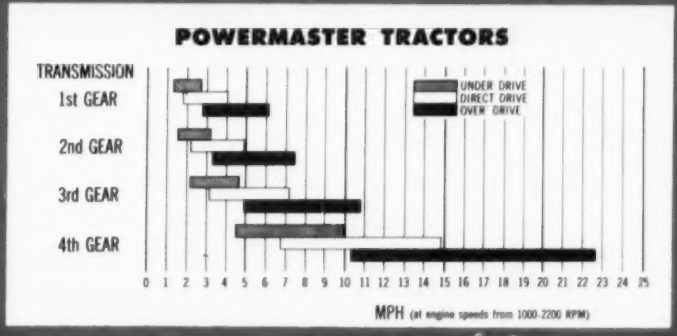
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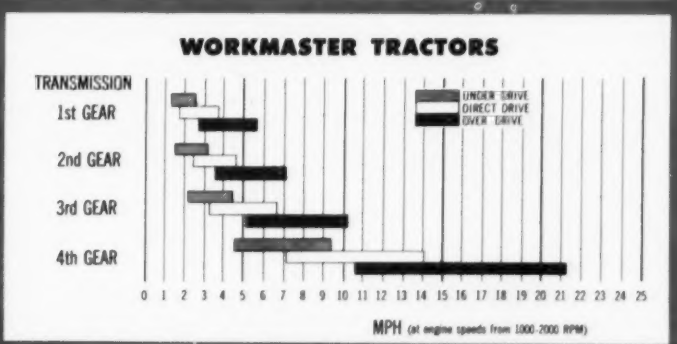
TRANSMISSION
1st GEAR
2nd GEAR
3rd GEAR
4th GEAR
UNDER DRIVE
DIRECT DRIVE
OVER DRIVE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
MPH (at engine speeds from 1000-2200 RPM)


WORKMASTER TRACTORS
TRANSMISSION
1st GEAR
2nd GEAR
3rd GEAR
4th GEAR
UNDER DRIVE
DIRECT DRIVE
OVER DRIVE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
MPH (at engine speeds from 1000-2000 RPM)

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YOU SEE MORE FORDS BECAUSE THEY SAVE MORE MONEY!

Wet Gravel Won't Clog New Wobbler Feeder

SEPARATION—Rotating wobbler bars sort gravel quickly. Minus 3-in. particles drop through; remainder comes off at end.

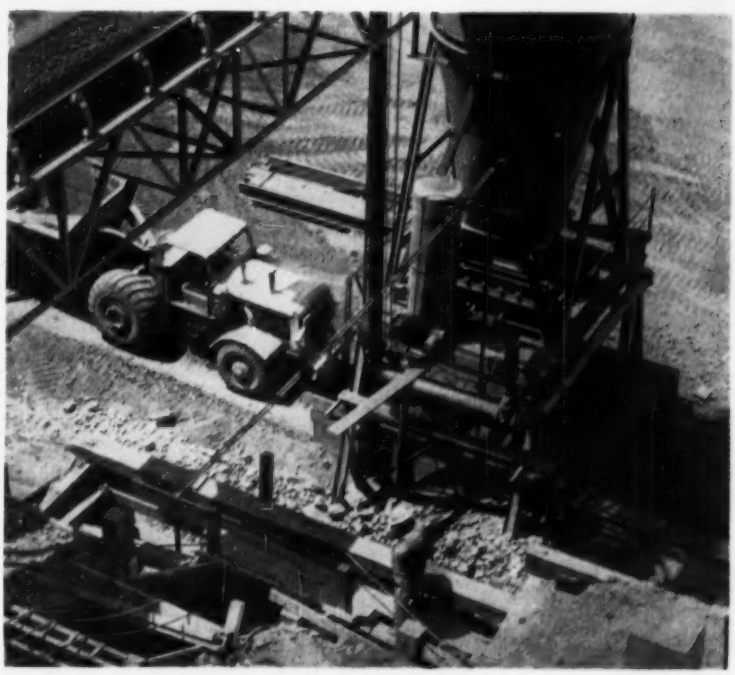
COMPLETE PLANT—Trucks dump unsorted wet gravel on to feeders from top of wooden bulkhead. Conveyor system carries sorted material through plant to trucks.

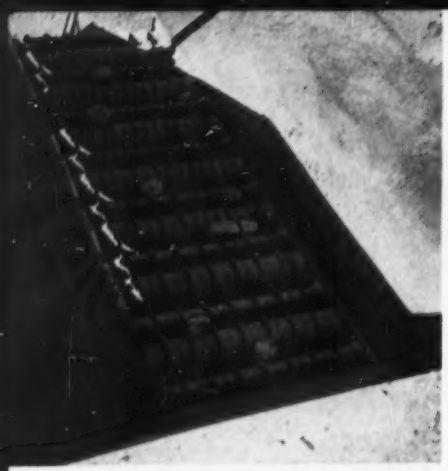
DELIVERY—Overhead conveyor moves small size material to loading bin. Larger rocks go down chute to loading bucket.

A NEW DEVICE originally designed for sorting iron ore, is handling wet gravel on a construction job without becoming clogged. It is a Universal Wobbler Feeder, and it sorts material through rotating, oval-shaped bars instead of the usual vibrating screens.

The Universal Engineering Corp. adapted the feeder for Winston Bros. Construction Co., contractors for the $9-million Casitas Dam near Ventura, Calif. The dam is part of the Bureau of Reclamation's $28-million Ventura River Project.

According to Fred G. Peterson, project manager for Winston Bros., a shaker-screen system that could do a comparable job would use twice the power and would cost $$30,000 more to build. It also would have to be twice as high and would require a heavy concrete foundation to prevent the hill on which the Wobbler is





FEEDER BED—As oval bars rotate, space between them remains constant at 3 in.

built from sliding away because of vibration.

The big advantage of the Wobbler system is that wet gravel won't jam it or slow down its operation. This is important in the Ventura area where annual rainfall is 12-14 in., mostly concentrated in the winter.

The earth fill dam will be 275 ft high and 2,000 ft long and will require 4,000,000 cu yd of fill material. Winston figures they will need a continuous output of 1,200 cu yd per hr to complete the fill on schedule by February, 1959. So a dependable means for classifying the fill is essential.

A nearby gravel pit supplies all the material required for the fill, but specifications call for 81% to have particle sizes less than 3 in. dia and the rest to be over 3 in. This means that all of it must be classified into these two groups.

Hill Side Plant

The Ventura plant is set on the side of a hill to use gravity feed. A horizontally planked bulkhead supports the face of the hill.

A loading platform at the top of the hill accommodates the 22-cu-yd bottom dump trucks and the 10-cu-yd end dump trucks that haul the material in.

From the trucks the fill drops into a hopper. The hopper walls, slanted at approximately 85 deg, feed the material to two 48-in. wide Wobbler Feeders, set in parallel, for splitting on the 3-in. size. Two 15-hp motors equipped with U.S. Vari-Drives power the system.

The bed of each feeder is composed of 16 oval-shaped, ribbed bars. The bars are parallel to each other in their longitudinal direction, but the oval shape of each bar is set at right angles to the one on the next bar so that horizontal and vertical positions are alternated.

All the bars turn in the same direction and are timed so that the space between them remains constant at 3 in. This rotation gives the material a rocking, tumbling motion that shakes the minus 3-in. material through between the bars. The rest is delivered off the end.

A 50-ft conveyor moves the minus 3-in. material to a hopper at the bottom of the hill where 22-cu-yd bottom dump trucks pick it up and haul it to the dam. The oversize material goes down a steel-lined chute to another hopper for loading on to 10-cu-yd end dump trucks.

The feeders are self-cleaning and do not clog in wet or sticky material. But during the early period of operation this type of material built up heavily on the hopper walls. It was necessary to install a compressed air system to keep the material flowing.

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Mister, it's at times like this that you need The Travelers.

The Travelers has trained bond specialists all across the country, ready to give you immediate service wherever you are. They're experts—men who know local requirements, know just what you need and what you don't need.

Next time you need efficient bond service, call your local Travelers agent. He'll see that you're well served. . . .

The Travelers complete service for contractors also includes: *Workmen's Compensation and Public Liability* insurance with effective safety engineering to reduce accidents; *Contractors' Equipment Floaters* and *Builders' Risk* insurance serviced by a nation-wide claim organization that can give you prompt attention anywhere.

YOU WILL BE WELL SERVED BY

THE TRAVELERS

INSURANCE COMPANIES, HARTFORD 15, CONNECTICUT

All forms of business and personal insurance including
Life • Accident • Group • Fire • Marine • Automobile • Casualty • Bonds

When you buy new equipment...

do you want a big trade...
a cut price...
or a profitable production fleet?

You have to take your choice . . . they don't all come in the same package.

With a fifteen-year Federal guarantee on a gigantic road program backed by a self-financing tax-plan built into roading tax revenues, we see no reason for buying construction equipment for short-term profit.

So, when you buy a modern fleet of dirtmovers for around $100,000 or more . . . you should be thinking of usage on a 10,000-hour productive use basis. If you have three load-haul-and-spread dirtmovers in the package, you are thinking about 30,000 productive hours.

Just one extra pay-yard per load on an average of nine trips per unit per hour times 30,000 hours means 270,000 plus yards. Even at a low bid rate of only 30 cents, that is $81,000! Does a 10% discount on purchase price or a 10% bigger trade-allowance on old equipment look better to you than that plus in profit of $81,000 just for load capacity and easy loading ability?

Let's also take a look at what faster loading, easier maneuverability, instant shift, quicker spreading, and faster haul and return will do. Say it only gives you one extra trip per hour for each machine. For three machines and 10,000 hours, that figures 30,000 extra trips. At 14 yards pay for good common earth with three machines in the C Fullpak* Tournapull® class, that would be 420,000 yards. Again at the low-low of 30 cents that's $126,000 in PLUS profit. You can get it with a little extra speed that cuts cycle time.

If you can come up with a machine that gives you *both* the extra yard per load *and* the extra load per hour, you are looking at a plus in five-year extra profit of around $207,000.

Do you want to swap that for a bargain price or a fancy trade? Remember that's purely the plus in profit, figured on the EXTRA yards only . . . not the basic yardage. And also, while we've figured on a 30 cent pay-yard, we don't believe you should be quoting 30 cents now. And we're sure, as the big road program gets over the engineering and right-of-way delays, you'll be winning bids on a lot higher price than that over the years ahead.

We think we have equipment in our high production, modern C and B Fullpaks that can give you that extra yard per load and that extra load per hour . . . both of them. But you are the buyer and that's for you to decide. Look these Tournapulls over, see them in action. Look at our competitors' latest machines, too. Then buy what looks best to you. But buy for the best in *plus* pay-yards not just the best "bargain" or the best "deal".

*Trademark 1687-DC-2

LeTourneau-Westinghouse Company
PEORIA, ILLINOIS
A Subsidiary of Westinghouse Air Brake Company

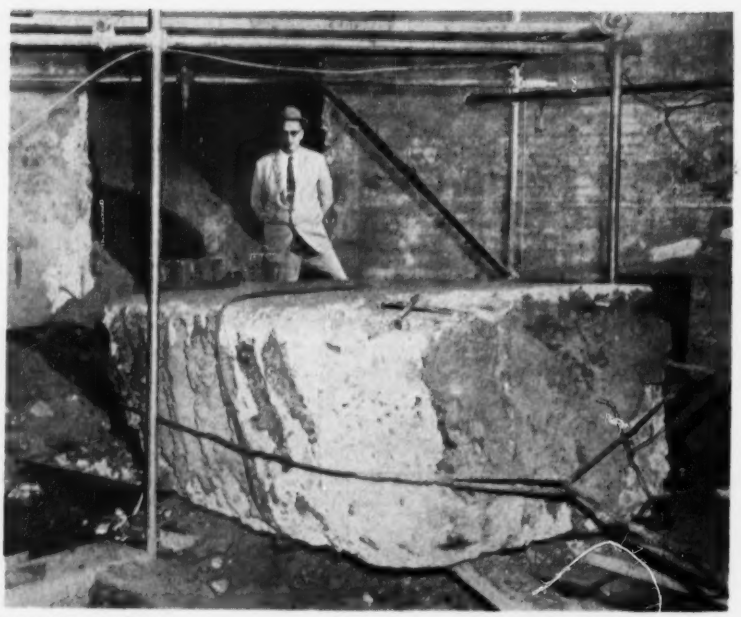
Powder Lance Cuts Concrete

MAKING A CUT—Lance moves on pipe guide to make a horizontal cut.

POWDER LANCING — a new method for burning through concrete is speeding a demolition job at General Electric Company's general engineering laboratory in Schenectady, N. Y.

The laboratory building formerly housed a pit with thick concrete safety walls for testing steam turbines. Part of the building now is being converted into a radiation laboratory scheduled for completion in 1958. Before construction could get under way, though, more than 8,000 cu ft of the thick concrete walls had to be removed.

The turbine testing pit is hexagonally shaped and consists of two concrete safety walls separated by 6 ft of packed sand. The inner wall is 3 ft thick and the



FINISHED CUT—Concrete section taken from wall awaits removal from job.

Working in 2nd gear, Adams 660 grader levels stabilizing fill through Big Cypress Swamp, on contruction of Florida highway 29E. Prior to this job, Collins' crew completed a ten-mile section of highway 41, through the heart of the Everglades. Said operator Johnny Wahtley, "I've been operating the '660' on a lot of rough jobs for the past 7 months. The power moldboard really works swell... especially in ditching and in close quarters. I can slide the blade in and out, it says a lot of work."

Through Florida Everglades

3 Adams* graders speed construction of highway across cypress swamp

E. E. Collins Contracting Co., Miami, Florida, contracted to build a 12-mi. section of state highway 29E — southwest of Immokalee, in the Everglades. When completed, the project will provide a new highway — across Big Cypress Swamp—between Naples and Immokalee. It will shorten the present route by about 30 mi.

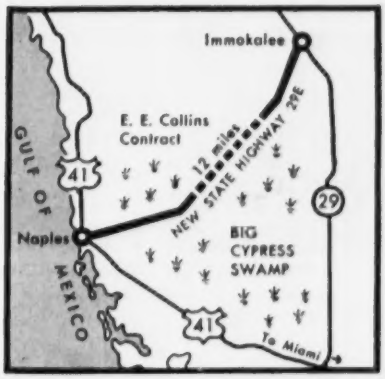
Important tools in Collins' equipment fleet are 4 heavy-duty Adams graders: two "660's", a "610", and a "550". The three larger LeTourneau-Westinghouse models were assigned to handle all grading on this project.

Level 83,000 yds. of stabilizing fill

A mixture of blue-marl base-rock and sand — hauled in from nearby pit — was used as stabilizer over the swampy sections. On the entire project, the 3 Adams graders leveled 83,000 yds. of stabilizing material. In addition to handling all subgrading, the two 150 hp "660's" and a 100 hp "610" graded 8′ shoulders and 32′ slopes on each side of the 20′ wide roadway.

"Adams graders have tremendous power"

Asst. General Superintendent A. C. Hallock says, "These Adams graders have tremendous power... and maintenance on them has been very low." Veteran operator C. A. Fox (a grader operator since 1923) added, "I've operated most makes of graders... the '660' is the best. I've never been bogged down with this machine — although I have pulled out a lot of other equipment with it while working in the Everglades."



Map shows 12-mile road contract of E. E. Collins Construction Co. The new state highway will shorten the present route from Naples to Immokalee (via 41 and 29), by about 30 miles.

See for yourself

Why not let us arrange for a demonstration? See how Adams — with its greater range of working speeds and its ease of blade operation — outproduces any other grader of comparable size, power, or price. 6 sizes — 60 to 190 hp. Choice of GM or Cummins engines on 5 larger models. 190 hp model has torque-converter drive.

Besides the two 660's and 610 Adams graders used on the Naples to Immokalee project, Collins Contracting Co. also owns a heavy-duty Adams 550 grader. Here the "550" grades rough shoulders on dead-end city street in Miami. Says Job Foreman G. M. Still, "Our Adams turns out more work than any other similar piece of equipment in its class." From the cab, 30-year grader man James M. Stalling added, "I like the speed... especially in reverse. It has good visibility and is very maneuverable... carries a nice load." *Trademark G-1509-DC-1

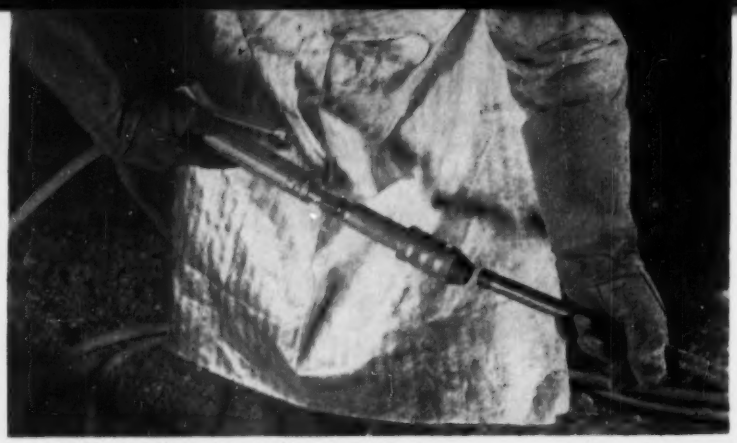
LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

POWDER LANCE CUTS CONCRETE . . . continued

POWDER DELIVERY—Dispenser delivers powder to lance at a uniform rate.



HOW THE LANCE WORKS—Workman fits iron pipe to lance handle. Iron and aluminum powder, mixed with oxygen in the handle, are carried to cut through lengths of pipe.

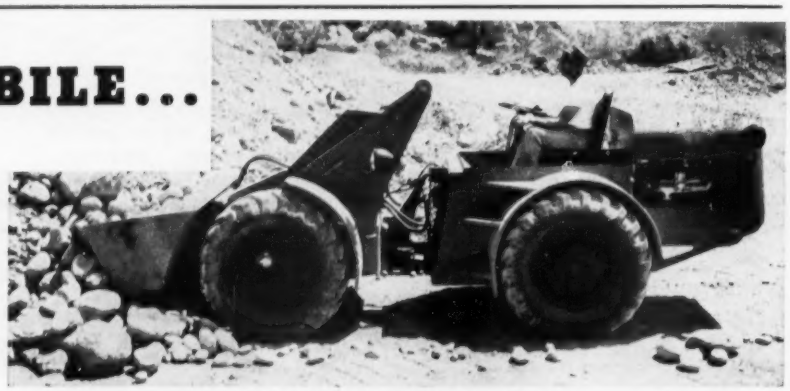
outer wall is 4 ft thick. Both walls stand about 16 ft high.

James E. Lowe & Sons of Schenectady, contractor on the job, cuts the walls with the powder lance into huge sections measuring 16x20 ft and weighing up to 18 tons. Cutting speed is about 1½ ft per hr. After each section is severed, it is hoisted out of the pit by a 100-ton bridge crane and hauled away. The job figures to be completed within six weeks. The method was developed by Linde Co., a division of Union Carbide. This is how it is done.

A mixture of iron and aluminum powder is fed pneumatically into a lance handle and mixed with oxygen. The powder and oxygen, mixed in the lance handle, are carried to the cut by one or more lengths of pipe. These produce a bombardment of burning iron and aluminum particles which melt the concrete. Cuts through 12-ft-thick walls have been made with the lance.

SCOOPMOBILE...

the construction man's loader



LD-5 Scoopmobile loading boulders for fill.

If all loaders were bought by the men who operate them, it would be hard to find anything but Scoopmobile. The picture shows why:

1 ▸ Easily accessible from either side. Built-in steps and absence of obstructions make it easy to get on and off the machine.

2 ▸ Excellent visibility. Operator has a clear view of his work at all times.

3 ▸ Easy, precision steering. Power-actuated center pin steering takes little effort, makes precision spotting of the bucket easy and enables the operator to "squirm" his way out of sand or mud.

4 ▸ Full oscillation. The rougher the going the more you'll like Scoopmobile. All four wheels are on the ground at all times with full four-wheel drive.

Add these features to massive construction and 100% break-out action, and you get the answer to more work and lower loading costs. See your Scoopmobile dealer for information and demonstration on your own work.

SCOOPMOBILE

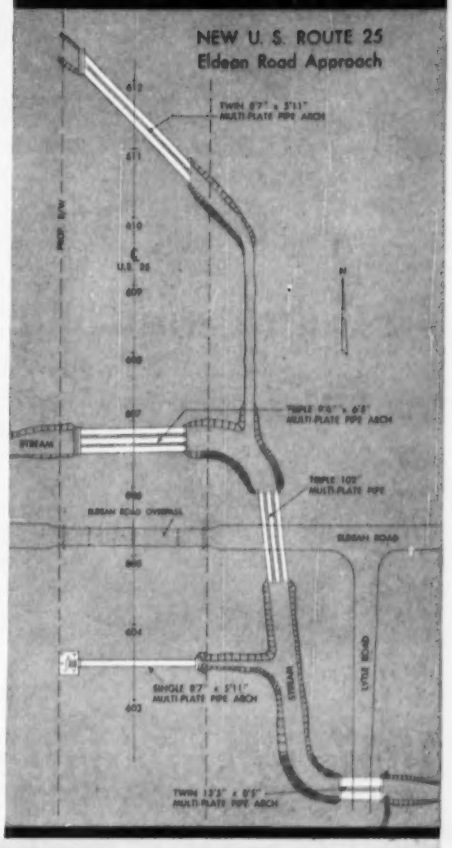
Manufactured by **MIXERMOBILE MANUFACTURERS, INC.**

8027 N. E. KILLINGSWORTH STREET • PORTLAND 20, OREGON

Dealers in principal cities of the United States and Canada

"Armco MULTI-PLATE Pipe is easy to install"

In foreground is Mr. Edward B. Copas, directing assembly of double Armco Multi-Plate Pipe-Arch at Eldean Road site.


NEW U. S. ROUTE 25
Eldean Road Approach
TWIN 87" x 5'11" MULTI-PLATE PIPE ARCH
TRIPLE 9'8" x 6'8" MULTI-PLATE PIPE ARCH
TRIPLE 102" MULTI-PLATE PIPE
ELDEAN ROAD OVERPASS
ELDEAN ROAD
STREAM
SINGLE 87" x 5'11" MULTI-PLATE PIPE ARCH
TWIN 13'3" x 8'5" MULTI-PLATE PIPE ARCH

So said Mr. Edward B. Copas, Construction Superintendent for D. R. Smalley & Sons, Inc., contractors of Celina, Ohio.

He was directing the assembly of five different Armco MULTI-PLATE® Structures used to solve a difficult drainage problem at a road overpass near Troy, Ohio. This part of the relocation of Route 25, in Ohio is under contract to D. R. Smalley & Sons, Inc. (Map shows details of the site.)

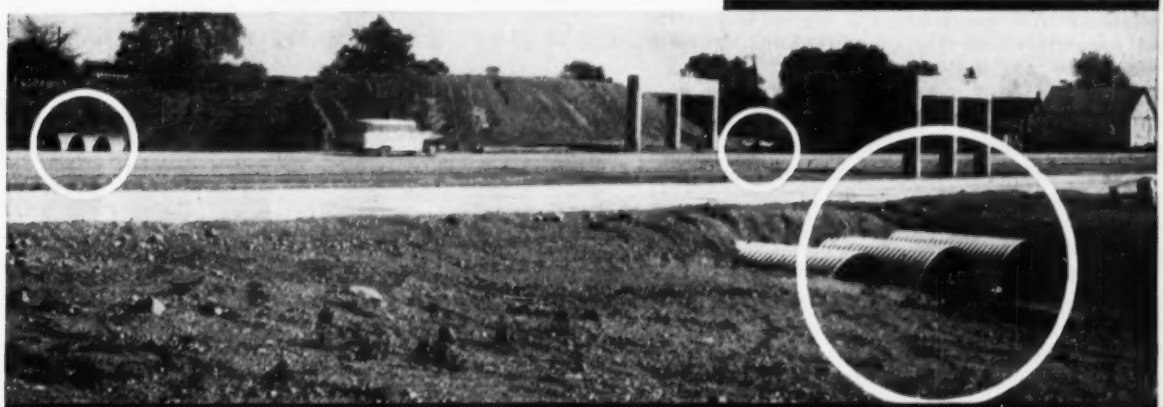
All design work and supervision of construction on the Route 25 project is handled by the Ohio Department of Highways.

* * * * * *

Contractors all over the country are installing Armco MULTI-PLATE Pipe, Arch and Pipe-Arch on major expressways as well as secondary roads. Work goes quickly—no curing before backfilling. Wide range of sizes and gages.

Write for data on Armco MULTI-PLATE Structures, Armco Corrugated Metal Pipe, Armco FLEX-BEAM® Guardrail, Armco Pipe Piles and other products for highway construction. Armco Drainage & Metal Products, Inc., 4077 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

This photo shows three of the five Armco MULTI-PLATE Structures at the Eldean Road approach on Ohio's new Route 25. At left is triple line of pipe; at right is triple line of pipe-arch; and in background is double pipe-arch carrying drainage of the other four structures.



ARMCO MULTI-PLATE DRAINAGE STRUCTURES

ARMCO

New International

V-8's

Built to stay on the job longer!

INTERNATIONAL heavy-duty V-8 engines stay on the job long after high stress modified engines have failed to satisfy.

The big difference: INTERNATIONAL V-8's are *built* specifically for rugged, continuous truck operations—and they've proved it since introduction a year ago. Every part, from the heads to the pan, has built-in reserve life. For example: there are exclusive long-life "wet" replaceable exhaust valve guides, fully machined and high efficiency combustion chambers, Y-shaped, deep skirted, rigidly constructed special alloy cylinder block, and many other endurance features that also keep running costs low.

When you buy trucks to make a profit, your logical choice is an INTERNATIONAL, the heavy-duty favorite for the past 25 straight years because they are *built* to stay on the job longer.

They GO on the job! They *stay* on the job! V-8 powered INTERNATIONALS are available with 206, 226, 257 hp. engines—most powerful, most economical you can get. Models from 24,000 lbs. GVW to 76,800 lbs. GCW.

International Harvester Company, Chicago
Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

International Trucks cost least to own!

From muck . . . . . to model homes,

the "before and after" of land reclamation using an Ellicott "DRAGON."

HOW TO TURN A SWAMP INTO ACRES OF DOLLARS

. . . with an Ellicott DRAGON*

A Typical Job: creating land for a blue-chip summer vacation area on Barnegat Bay, N. J. Two-thirds of the 180 acres of raw marsh land were under water.

They Cut Filling Costs In Half by using an Ellicott "DRAGON" model hydraulic dredge. It paid for itself in a few months. At a land fill investment as low as $700.00 an acre, developers are producing land that will bring up to $12,000.00 an acre when market-ready.

Many Other Projects are producing similar results in Florida, along the Great Lakes, and elsewhere. The "DRAGONS" accomplish three jobs in one: dig swiftly under water through sand or light gravel, transport their own fill at varying distances, and grade to a smooth, compact surface. Ellicott "DRAGON" models can be moved overland from job to job by truck or low-boy.

For land reclamation, or for any dredging operation, the "DRAGON" will prove to be your most economical investment. Write today for Bulletin 925. Ellicott engineers will gladly make recommendations on any dredging problem without obligation.

*T. M. U. S. PAT OFF. MARQUE DEPOSEE

4430

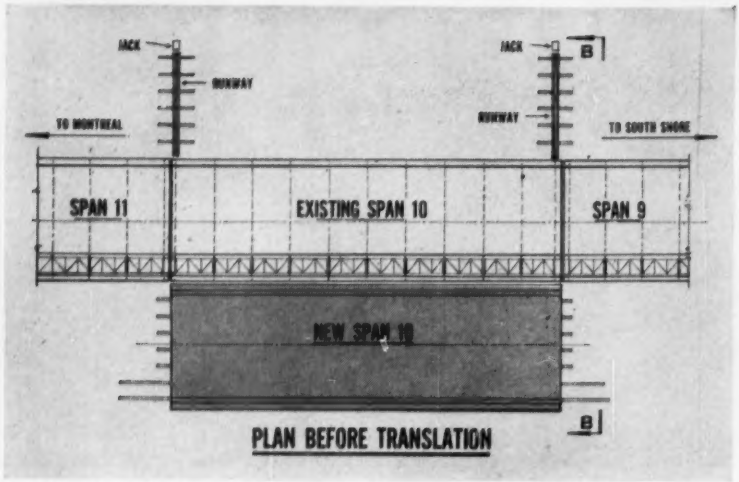
ELLICOTT MACHINE CORPORATION

1605 Bush Street, Baltimore 30, Maryland, U.S.A.

Subsidiaries: Dragues Ellicott France, Paris, France; Ellicott de Mexico, Mexico City, Mex.; Ellicott Fabricators, Inc., Baltimore, Md.; McConway & Torley Corp., Pittsburgh, Pa.; Baltimore Foundry & Machine Corp., Baltimore, Md.

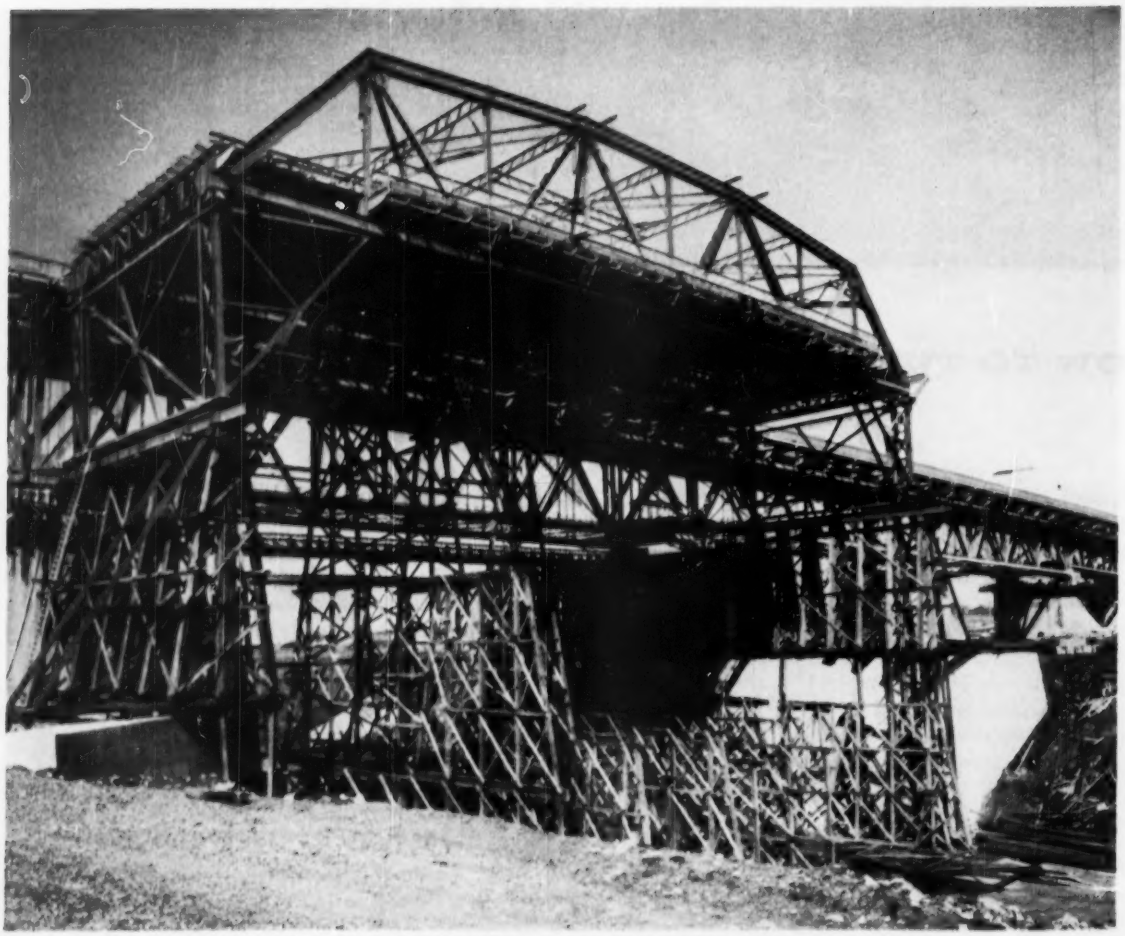
Successors to the floating dredge business of the Bucyrus-Erie Co. and the American Steel Dredge Co. Complete engineering sales and repair parts service.

To provide additional clearance over Seaway canal, contractor rolls old deck-truss span out, new through-truss in.

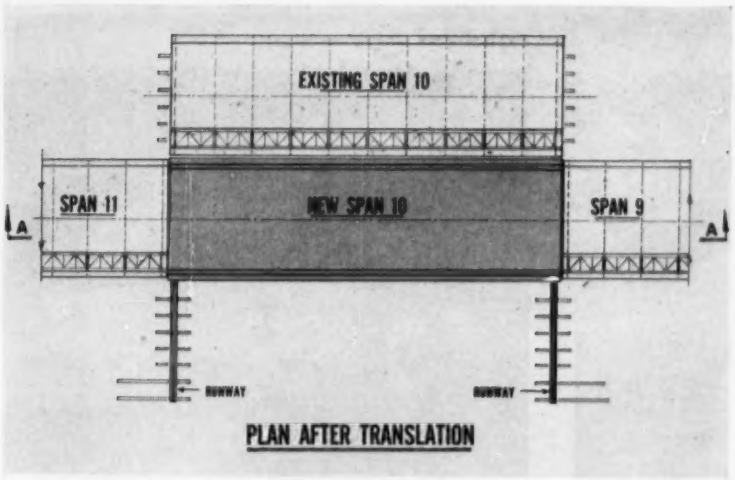


BEFORE AND AFTER—new span is erected on falsework alongside existing span. Jacks

Jacks Switch Bridge Spans

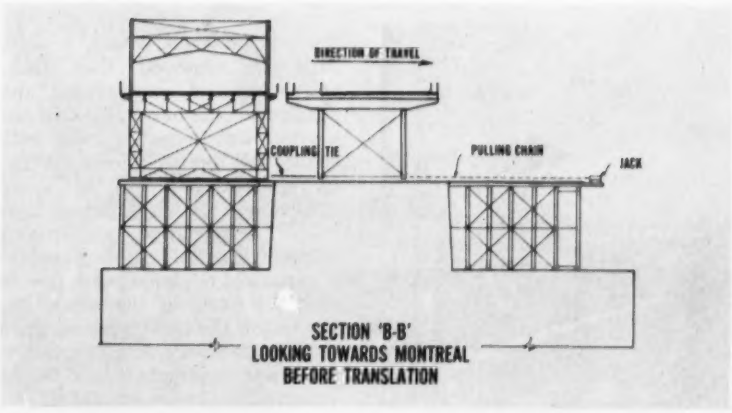


READY TO ROLL—Temporary legs under new span are ready to roll on runway. Meanwhile, erection falsework is dismantled and re-erected on opposite side.

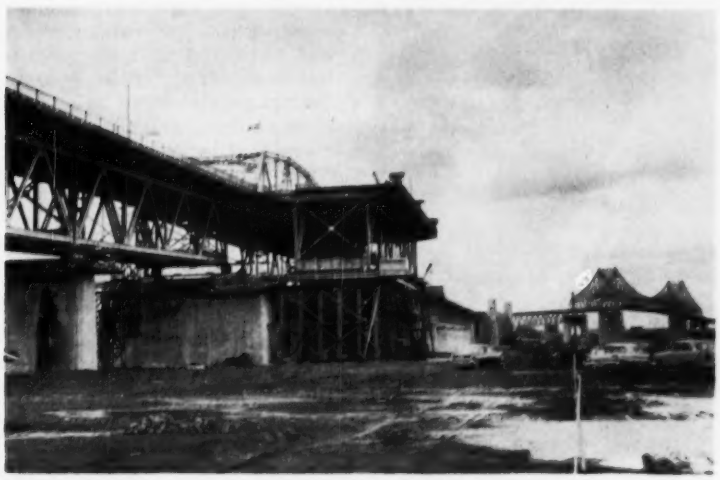


mounted at end of runway pull old and new span simultaneously 78 ft to new position.

in Five Hours



LONG RUNWAY—Pair of 300-ton jacks set up at ends of 220-ft runway pull both spans in downstream direction. Combined weight of spans is more than 3,100 tons.



OLD SPAN OUT—Crews resume vertical jacking of bridge as old span is dismantled.

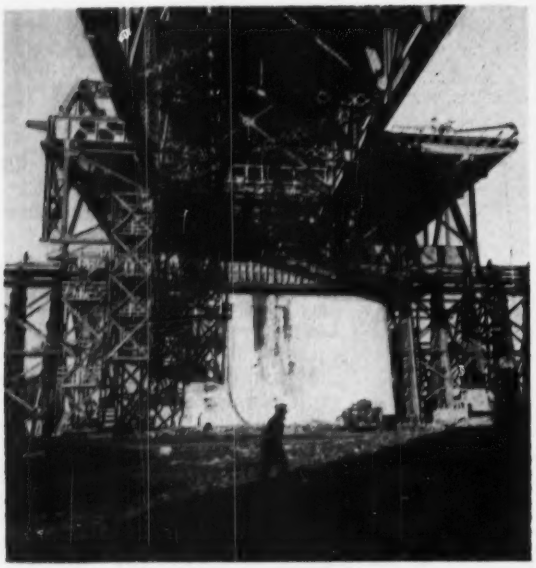
THE CRUCIAL STAGE in the raising of Montreal's Jacques Cartier Bridge has been completed with spectacular success. In less than five hours, crews of Dominion Bridge Co. rolled out a 250-ft deck span and rolled in an equally large through-truss span. They picked the early hours of a Sunday morning when traffic was light, translated the spans without a hitch, and had traffic rolling again by 10 am.

The unique operation was part of the two-year job of raising the bridge 80 ft to provide clearance over the St. Lawrence Seaway canal. (CM&E Sept. '57, p90) About 50 ft of clearance will be achieved by jacking 15 of the spans. The additional 30 ft has now been acquired by replacing the deck truss at Span 10 with a through truss.

To reduce traffic interruption during the translation of the two spans, Dominion engineers made extensive preparations. Months before, they built a giant timber falsework alongside the old deck span to support the erection of the new through-truss span. Resting on the floor of the canal, the 140-ft high falsework was built in two sections—one to support the truss during erection and the other to permit erection of the stiffleg traveler that assembled the truss.

Key to the fast and efficient translation of the two spans was a pair of 300-ton jacks. One was set up at the far end of each runway and was tied to the old span by heavy plate-linked chains. In a synchronized operation, the two jacks pulled the old span on to the runway. And because the old and new spans were connected temporarily, they moved together. Both spans were mounted on roller trucks containing forty-two 6-in. dia rollers. The trucks in turn rested on the two runways, each consisting of seven rails.

Working together, the two jacks pulled the 3,100-ton combined weight of the two spans through a 4-ft stroke. Power was supplied by electrically driven hydraulic pumps delivering oil at pressures up to 6,000 psi. At



HALF WAY ACROSS—Old span moves out as new span moves in. Job was undertaken early Sunday morning when traffic was light.

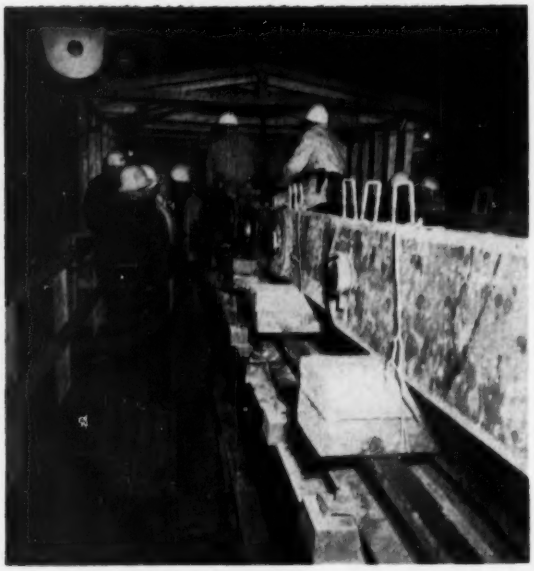
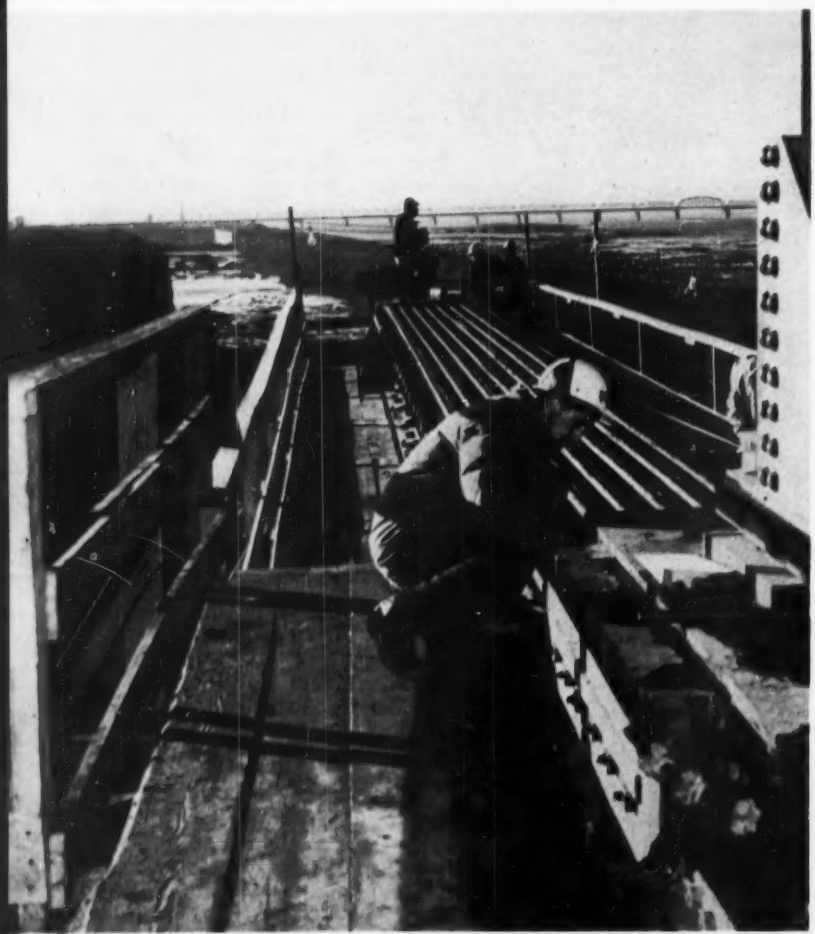


PLATE-LINK CHAIN—One section of plate link is removed at end of each stroke and chuted into sand pile below runway.



ROLLER TRUCKS—Both old and new spans are carried along runway on eight roller trucks, each containing forty-two 6-in. dia rollers. Tracks consist of seven rails.

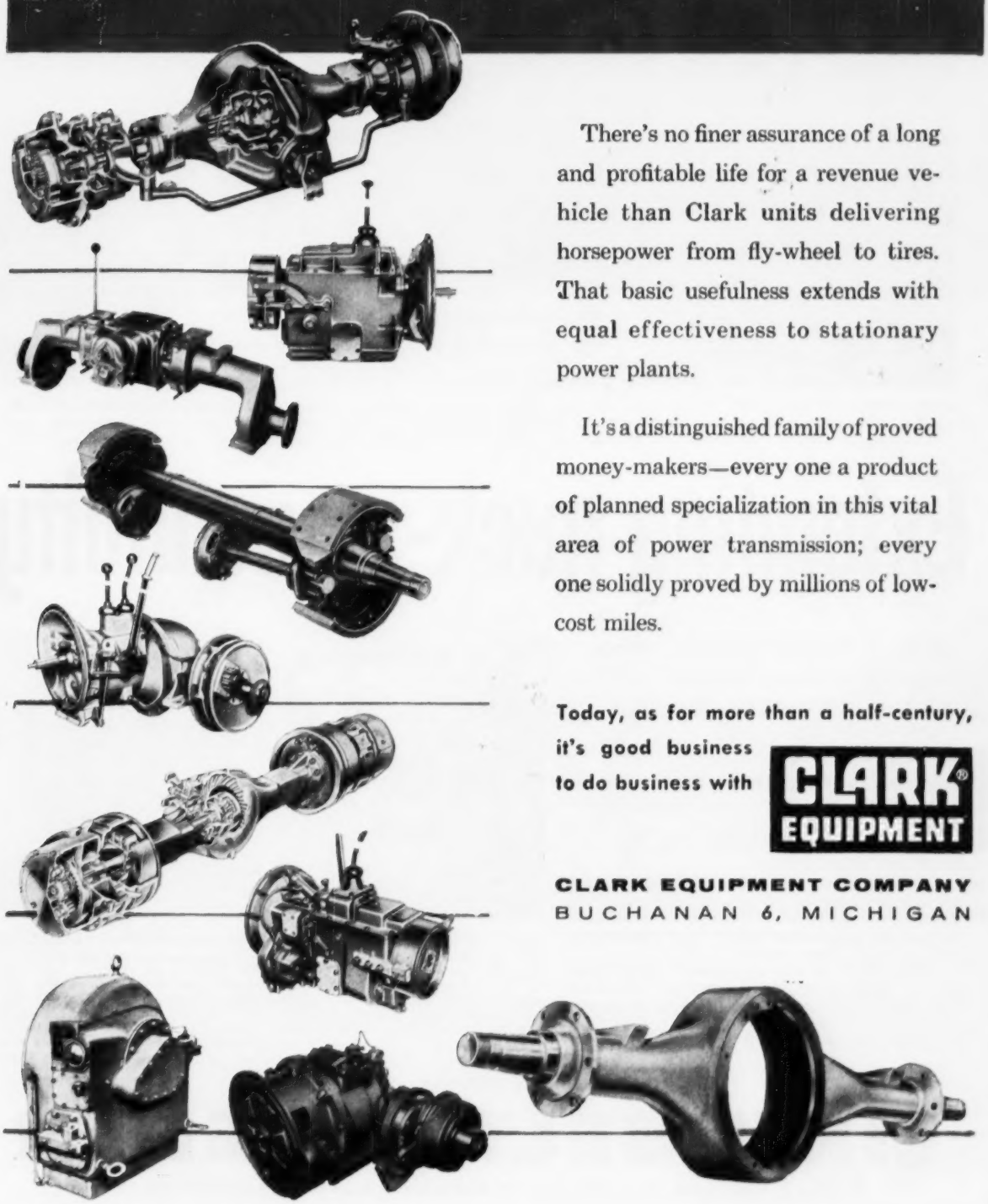
the end of each stroke, a plate link was removed, then jacks were retracted, reconnected, and readied for the next pull. This operation was repeated until both spans had been moved the required 78 ft.

Throughout the jacking, top-notch coordination was maintained. The field superintendent and project engineer were free to visit all parts of the work, but the rest of the crew were assigned definite positions ond ordered to remain there unless moved by the superintendent or engineer.

Control point of the operation was the center of the downstream edge of the deck on the old span. From there, the control engineer could watch all operations, and he was connected with all crews by telephone. Two crews operated control panels set up on opposite ends of the old span, two other crews handled the jacks, and still other men were stationed on the runway to watch the roller trucks.

When everything was ready, the control engineer gave the signal to commence jacking. Control levers were moved into full-speed position, and the jacks began to pull the spans. Jack elongation readings were taken every ½ in. and relayed by telephone to men at the control point who noted the information by moving a target rod on the bridge handrail. By this method, the

From fly-wheel to drive-wheel
. . . let it be CLARK



There's no finer assurance of a long and profitable life for a revenue vehicle than Clark units delivering horsepower from fly-wheel to tires. That basic usefulness extends with equal effectiveness to stationary power plants.

It's a distinguished family of proved money-makers—every one a product of planned specialization in this vital area of power transmission; every one solidly proved by millions of low-cost miles.

Today, as for more than a half-century, it's good business to do business with

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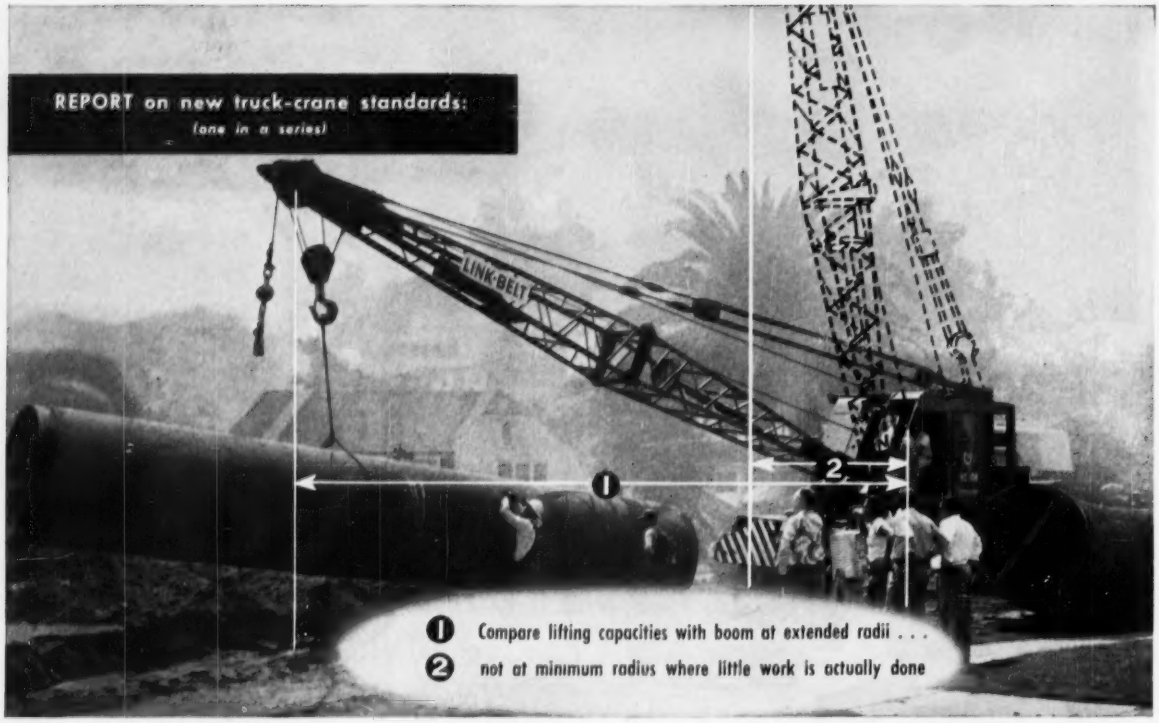

REPORT on new truck-crane standards:
(one in a series)
LINK-BELT
1
2
1 Compare lifting capacities with boom at extended radii . . .
2 not at minimum radius where little work is actually done

TRUCK-CRANE PRODUCTION: Most truck-crane jobs require using long booms at extended radii. Under these circumstances, Link-Belt Speeder machines are unsurpassed. Why? Because of high strength-alloy booms and new high-capacity jibs, extra "live" weight, strategically located uppers for better balance and stability plus advanced-design features such as clutch *up* and *down* on boomhoist.

Extending truck-crane utility

With new increased lifting capacity at extended radii plus outstanding mobility, Link-Belt Speeder Zephyr-cranes handle many jobs formerly handled by crawlers

Truck-crane production is directly related to lifting capacity. But lifting capacity varies with boom length and radius.

Thus, it's important to measure capacity on the basis of a boom out 25 feet and beyond where the bulk of the work is done. You'll be amazed to find that a Link-Belt Speeder far outperforms other similarly rated machines.

It's one of many ways a Link-Belt Speeder helps set new, more profitable standards of truck-crane operation. Contact your Link-Belt Speeder distributor or write for details. LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA.

FAST, POSITIVE, SAFE CONTROL—True power hydraulic controls are a Link-Belt Speeder exclusive . . . utilize oil under pressure to do the work. The operator merely flips short-throw levers. Smooth-operating hydraulic-actuated clutches provide perfect feel of the load at all times.

LOAD LOWERING CLUTCHES—Hydraulic-actuated reversing clutches are available for either or both main drums. They provide power load lowering of main hoist line and jib whip line. All clutches are interchangeable within a given machine . . . are self-adjusting for heat and normal lining wear.

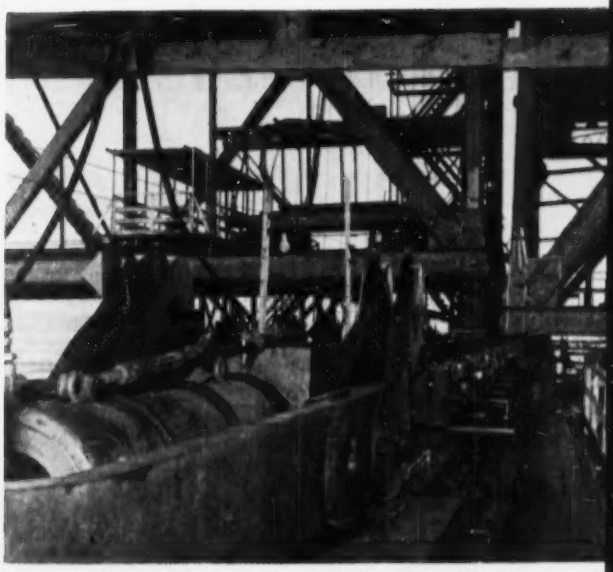
14,530

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

CONTROL PANEL—One of two operators works electrically driven pumps that deliver oil to jacks at pressures up to 6,000 psi.



DOUBLE-ACTING JACK—Mounted on end of downstream runway, 300-ton jack begins to pull spans. Jack has 4-ft stroke.

control engineer could quickly determine the relative progress of the two jacks. If one side moved ahead of the other, he notified that operator to reduce to half speed until the error was corrected.

Close communication was especially important when the jacks neared the end of their stroke. At this point, the upstream pin of the link to be removed was tested for looseness. The jack was fleeted at half speed, and, when the pin became loose, it was removed as quickly as possible to avoid stopping fleet travel.

When the upstream pin had been removed, the jack operators put both control levers into fast return. Men on the jack platforms removed the links and the downstream pin, which was replaced in the new link position as soon as possible.

During the power stroke, the pin and links removed during the last cycle were chuted to the ground one at a time. They landed on a sand pile at the bottom and were removed quickly so that other links were not damaged.

Throughout jacking, men on the runways were equipped with wedges, grease guns, and flashlights for inspecting rollers. They checked for any abnormalities and also wedged the upstream side of the extreme downstream roller nest at the end of each jacking stroke to prevent any loss of travel.

TRAFFIC RESUMES—Only five hours after jacking started, new four-lane span is in place. First vehicle across is mobile crane carrying official party to mark reopening.

Dominion made sure that all timber falsework paid for itself through reuse. Actually, the frame supporting the runway on which the old span was rolled originally served to support the erection of the traveler that assembled the truss on the opposite side of the bridge. And the towering falsework that supported the erection of this truss was reassembled later on the opposite side to help dismantle the old span.

Ross Chamberlain was project engineer, and Vernon Carr was superintendent for Dominion Bridge Co.

ENDS MESS AND WASTE

NEW SINCLAIR LITHOLINE MULTI-PURPOSE GREASE CARTRIDGE

EASIER, FASTER, CLEANER LUBRICATION FOR CONTRACTORS

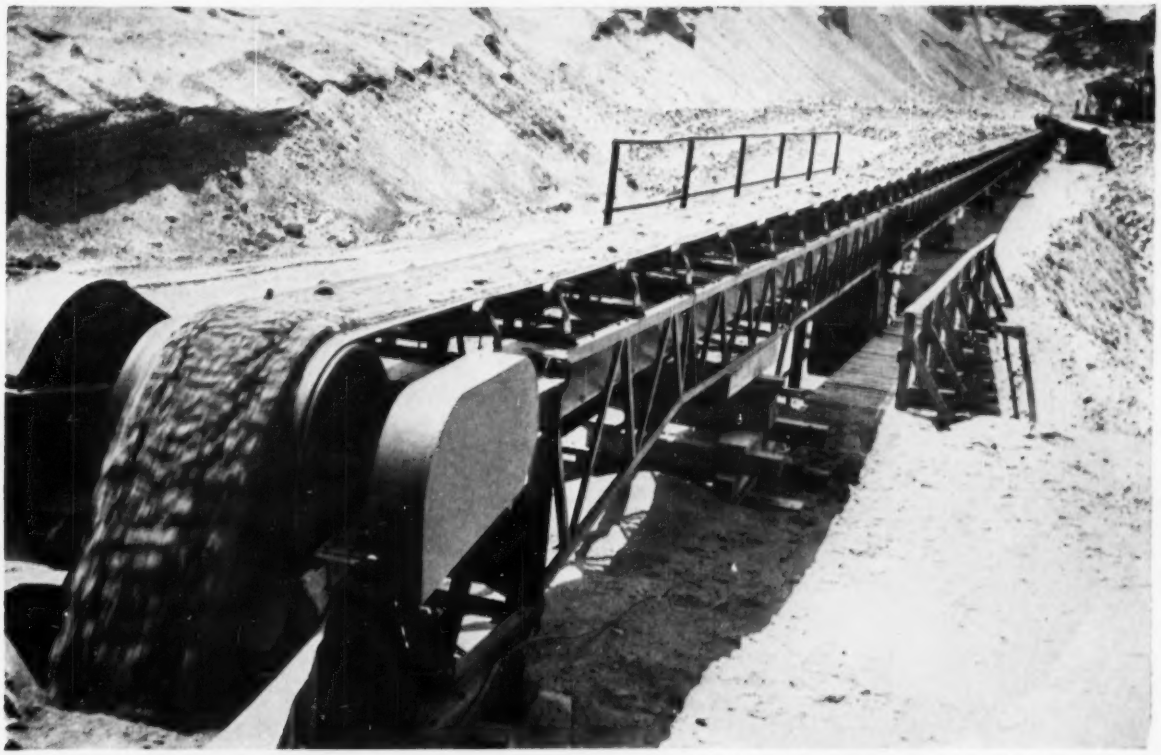
There's no mess, no spilling, no waste in filling your grease guns—when you use the new Sinclair LITHOLINE Multi-Purpose Grease Cartridge. Takes only seconds to pop a cartridge into the gun—and you're ready to lubricate. Fits all regular cartridge type guns.

Use Sinclair LITHOLINE for grease fittings on your equipment. It provides full protection against wear, rust, water—"stays put" under all conditions.

A Sinclair Lubrication Engineer will be glad to show you how the new Sinclair LITHOLINE Multi-Purpose Grease Cartridge can help *you*. Call your nearest Sinclair Representative, or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

SINCLAIR LITHOLINE

MULTI-PURPOSE GREASE CARTRIDGE



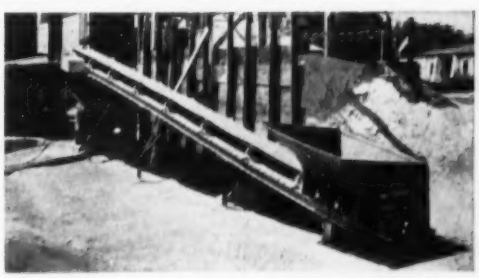
LONG HAUL—Even the longest Barber-Greene Conveyors are built of standardized components . . . produced on a precision, quantity production basis. They can be assembled in almost limitless combinations to cut the time and cost of any material handling job.

Long or short haul—it costs less to move materials with belt conveyors

Thousands of installations—ranging from a few feet to thousands of feet—prove that belt conveyors move bulk material at lowest cost.

No other machine is so simple in construction or requires so little maintenance. No other machine can deliver such high hourly capacities with so little power or attention.

Barber-Greene has given a new meaning to belt conveyor economy. Built of standardized components, Barber-Greene Conveyors are delivered sooner . . . require less engineering . . . are erected faster . . . give top performance . . . and are more easily altered to meet changing or expanding requirements. Being standardized, repair parts are readily available—usually from the stock of your local distributor.



SHORT HAUL—Even the shortest Barber-Greene Conveyors are available in standardized components in the width and length to suit your needs. These small conveyors provide the economical way to handle the widest range of materials with greatest flexibility.

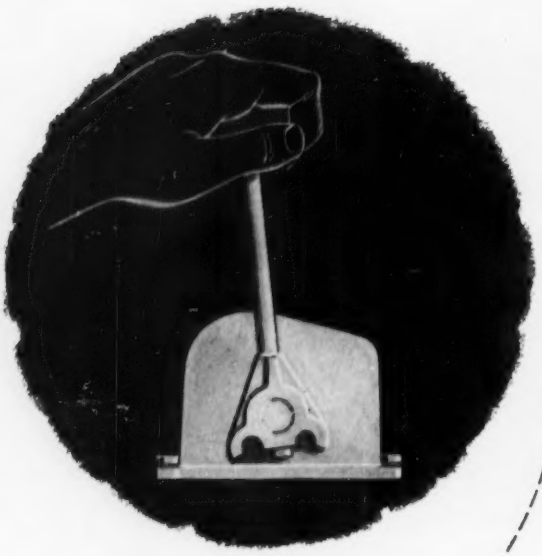
56-7-PE

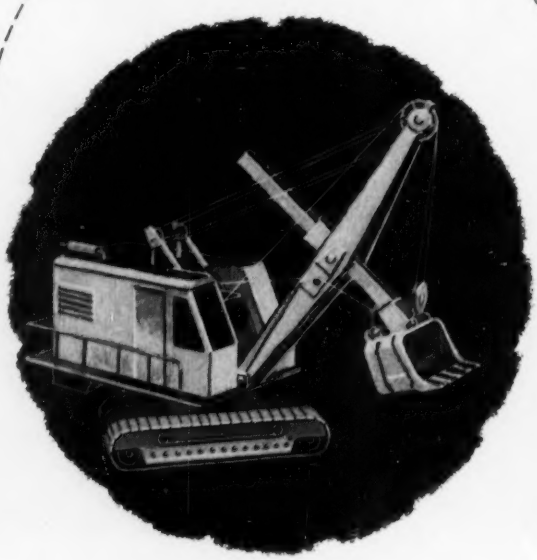
Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

SWING





Control them all with WESTINGHOUSE

Why specify Westinghouse Pneumatic Control for your earth moving equipment?

First, from Westinghouse you can get competent engineering assistance in the design of your control system. You can get help from a company with 89 years of experience in applying pneumatic control to a wide range of industrial equipment.

Second, you get the most versatile and most complete line of quality pneumatic controls available. These are ruggedly built devices that can stay on the job in tough earth moving service. They are simple controls that can be easily maintained by ordinary mechanics.

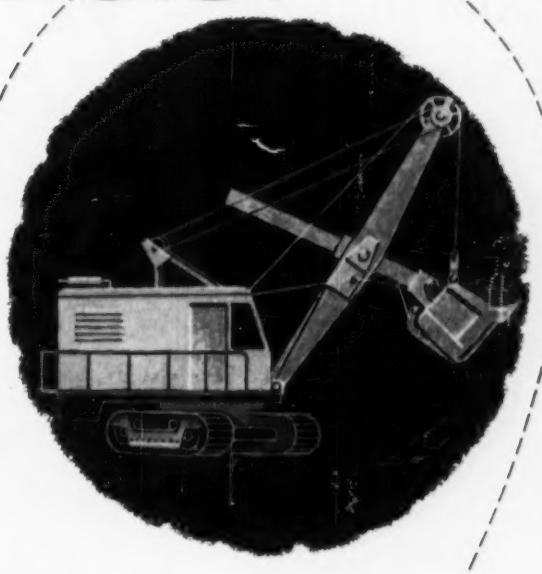
Third, you get world-wide service—from affiliated Westinghouse companies overseas. Parts or factory service are never far away when you need help in a hurry.

Send the coupon if you would like to know more about modern uses for pneumatic control.

89 YEARS OF PNEUMATIC ENGINEERING EXPERIENCE

CROWD

HOIST



safely . . . simply . . .

PNEUMATIC CONTROL

Confidence—the world over

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FREE PNEUMATIC CONTROL DATA—Here, in this new booklet, you will find basic fundamentals of pneumatic control engineering written clearly, concisely and with the authority of Westinghouse's 89 years of experience in this field. Send the coupon for a free copy. We'll also send you examples of recent applications of Westinghouse Pneumatic Control—applications which will show you the versatility of modern pneumatic control.

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Industrial Products Division, Dept. CM-127
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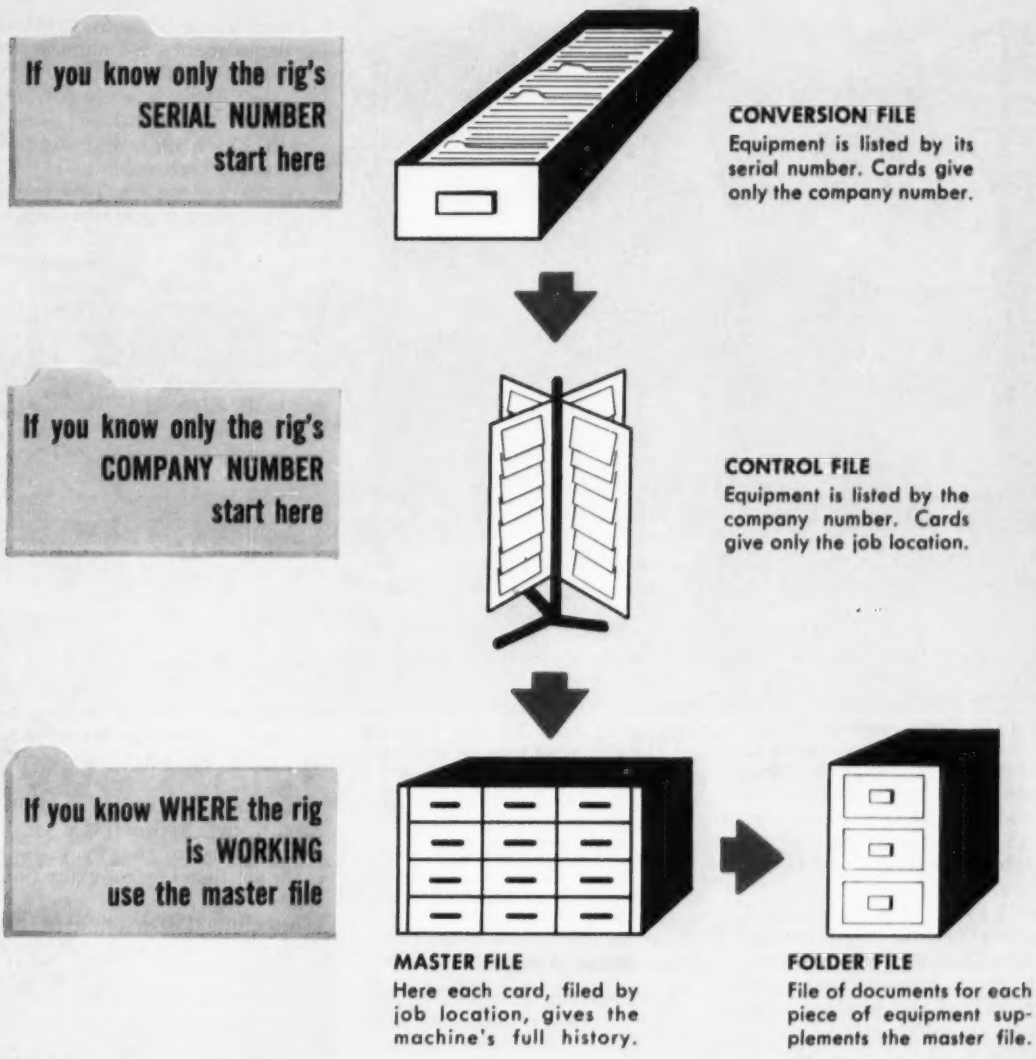
Roebling Royal Blue Wire Rope goes to any length to prove its **high strength!**

Every inch of every foot of Royal Blue is stronger than any rope you've ever used on *any* job. This on-the-job tenacity helps to make it the most widely and readily accepted rope in Roebling's history. It is but one of Royal Blue qualities that makes for its long service life—on any job you choose. For full details on Roebling Royal Blue Wire Rope talk to your distributor or write to Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, for your copy of "*Wire Rope Recommendations and Catalog*."

ROEBLING

Branch Offices in Principal Cities—Subsidiary of The Colorado Fuel and Iron Corporation


If you know only the rig's SERIAL NUMBER start here
CONVERSION FILE
Equipment is listed by its serial number. Cards give only the company number.
If you know only the rig's COMPANY NUMBER start here
CONTROL FILE
Equipment is listed by the company number. Cards give only the job location.
If you know WHERE the rig is WORKING use the master file
MASTER FILE
Here each card, filed by job location, gives the machine's full history.
FOLDER FILE
File of documents for each piece of equipment supplements the master file.

File System Finds Answers Within Seconds

A filing system may be complete, but it is of limited value if information is hard to dig up, because management wants facts fast. Here's how one equipment manager built a streamlined record keeping and control system to supply right answers in a hurry.

CONTROL OF EQUIPMENT can be a big headache for a contractor who has a number of widely scattered jobs going on at the same time. It's even tougher when the company is expanding rapidly.

When the Nello L. Teer Company of Durham, N. C., found itself in the middle of a big expansion program, the management realized that the equipment control system would soon become inadequate.

To keep on top of the situation they set up a completely new central control system that has

JUST A SECOND—Ray Rex answers a telephone question, locates the machine in control file, then directs assistant to master file drawer that contains its complete record.

solved a lot of administrative problems. Here's how they did it.

Objectives

The first move was to decide just what they wanted the new system to do. R. Dillard Teer, vice-president in charge of equipment control, and J. Ray Rex, the man who set up and is operating the system, listed the following objectives:

Scheduling—To get the proper equipment on each job at the right time, the location and condition of each piece must be known as well as whether it is currently in use or idle.

Dispatching—It costs money to move equipment from job to job. By knowing the exact location of equipment at all times it is easier to figure the shortest and cheapest moves.

Prevent Loss—Loss of equipment, especially of smaller machines, can get out of hand without good control.

Maintenance—The new system, designed mainly as an aid to top management, should contain major maintenance records not duplicate the detail records kept at the shop level.

Legal Problems—With equipment traveling between states and even out of the country, registration, sales tax payments, valuation, etc. become important. Control system must keep this information up to date.

Replacement—A complete history of each machine, including purchase price, rentals, where it has been and how it has been used, is a big help in deciding when to replace equipment.

Inventory—Complete or partial inventories may be required at any time. A good system can supply such lists quickly.

Speed of Operation—Often answers are needed fast. A system is of limited use unless information is easily available. It should also be simple so that it is easy to keep it up to date.

Cross Filing System

Teer's system classifies equipment in three ways—by company number (assigned by the accounting department), by manufacturer's serial number, and by job location. There is a file for each of these classifications plus a fourth folder file containing documents for each machine.

To use the system Teer people need know only one fact about a machine, say its serial number. With this lead they can go to the serial file and either find the information or get a reference to another file that contains it.

In addition to the files, a large, specially designed board that covers half the wall in Rex's office keeps a running inventory of all equipment. One can tell at a glance, for example, how many D8 tractors the company has in service and where they are.

The lineup of files looks like this.

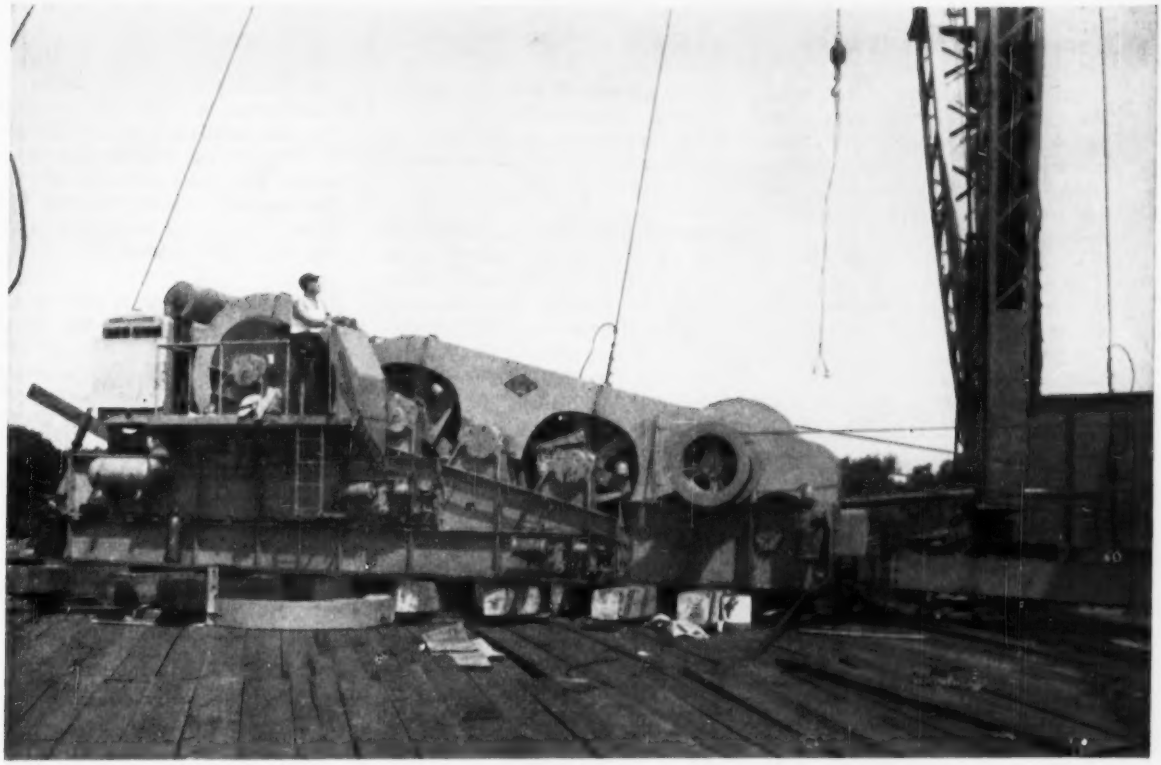
Master File—This file contains a card for each machine. The card gives a complete history of the machine including date of purchase, price, rentals paid, and a listing of where the machine has been and what has happened to it.

It is called a "visible card file." Each drawer represents a job location. Within the drawer the cards are listed by company number.

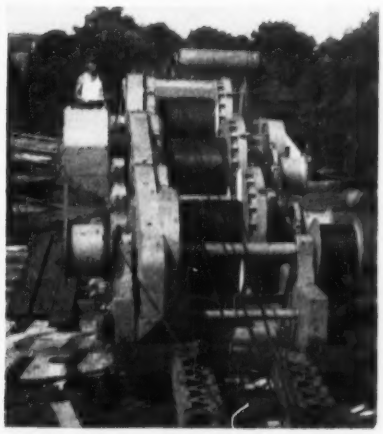
A celluloid flap on each card holder allows colored tabs to be inserted to record additional information.

continued on page 128

WHAT'S WHERE—Assistant reads off field inventory report as Rex uses sliding bar to check figures on big board, which shows number of each machine type on each job.



Clyde Hoists handle big steel for Harris Structural Steel Company, Inc.



One of the Frame-12 Clyde hoists operating on the New England Turnpike. Full air controls for ease of operation, double brake bands for extra safety are but a part of the many advantages found in these better built hoists by Clyde.

During a forty-minute interval, beginning at 4:19 A.M. on two successive Sundays, two Frame-12 Clyde Hoists, handled picks of 160 tons and 250 tons on the New England Turnpike at Stamford. That was the only interval free of traffic at the railroad terminal the turnpike crosses. Girders, up to 220 feet in length, had to be placed on schedule . . . and they were with Clydes! Clydes perform jobs impossible with ordinary hoists.

An on-the-scene engineer reported there was plenty of power for simultaneous hoisting and slewing. Clyde controls permitted smooth and accurate positioning of the girders and the performance of both hoists was outstanding.

Clyde Hoists Are Available In A Complete Range of Sizes!

Whatever your hoist requirements may be, you can capitalize on Clyde's more than a half century of hoist engineering and manufacturing experience. Clyde hoists are available in a complete range of sizes from 3,000 pounds to 80,000 pounds line pull . . . hoists that give smooth, positive control with safety and dependability.

The best names in the construction field use Clyde . . . write for your bulletins and specifications on any type of Clyde equipment.

CLYDE RIC

CLYDE IRON WORKS, Inc.

Established 1899

DULUTH 1, MINNESOTA

HOISTS · DERRICKS · WHIRLEYS · BUILDERS TOWERS · UNLOADERS · CAR PULLERS · ROLLERS

On the right side of the card the tabs show which state sales taxes have been paid. Since only some states have the tax it is possible to use a different color tab for each state and have enough colors to go round.

On the left side of the card a blue tab means that the machine is idle and available for use elsewhere. A red tab means it has left the job it was on but has not been reported on a new job.

The master file is the backbone of the system. The others supply limited information, but their main function is to identify the machine so that it can be looked up in the master file.

Control File—This is a vertical file of the "listing index" type. A book-like set of metal plates carry in special slots labelled cardboard strips, one for each machine, listing the company number and the current location of the machine.

Each time a machine shifts to another job, a strip that contains the new location is substituted on this file. To use the file one must know the company number of the machine. From this, the file gives him the job location and he can enter the master file.

Conversion File—This was an afterthought to the first two files. People often came to Rex for information knowing only the serial number of a machine. This meant he had to look down a long list of company numbers until he came to the right piece.

To overcome this he set up a drawer file with a card for each machine. The cards are listed by serial number but they also contain the company number. This enables Rex to spot the machine fast by serial number, go to the control file to get the location, and be in the master file in seconds.

Folder File—This is a fire-proof drawer file containing information that cannot be written on master file cards. Each machine has a folder that contains documents such as deeds, invoices, and sales tax receipts.

The "Big Board"—While not exactly a file, the board keeps a visible summary of the information contained in the other files.

Listed across the top of the board are the types of equipment the company has. Down the left side is a list of current jobs.

Cardboard tags with numbers on them, placed in metal grooves, show the number of pieces of each type of equipment on each job. At the bottom of the vertical columns are company totals for each type of equipment.

A vertical bar that moves along the board on rollers makes it easy to line up a figure with the correct title at the top of the board.

Field Network

Accurate and up-to-date information from the field is essential to keep the central system operating smoothly.

Rex depends on two things to keep the information flowing—a simple system of standardized forms for the paperwork and a group of high-calibre, well-trained field office managers whom the company has developed over the years.

continued on page 130

TAILORED BY
PRESCON

When plans include members which are prestressed and post-tensioned—it pays to use the Prescon System.

FOR THE CONTRACTOR it means tendons delivered to the job site, completely assembled, clearly identified and ready for the forms; a Prescon representative to instruct his men in placing and stressing the tendons, using hydraulic stressing equipment—furnished by Prescon.

FOR THE ARCHITECT and CONSULTING ENGINEER it means assistance with design and engineering when needed; and assurance that Prescon can be specified with confidence.

Write for new folder giving complete, detailed information including examples of structures using The Prescon System.

THE PRESCON CORPORATION
P. O. BOX 4186 CORPUS CHRISTI, TEXAS
Member of the Prestressed Concrete Institute

Cement Mixer Takes 60° Grade, one of many Four Wheel Drive tests. In all these grueling tests, Cities Service Lubricants make the grade and then some! They've done it for 20 years.

Early Four Wheel Drive Truck is one of vehicles in firm's museum. Founded in 1910, the company's first production amounted to 12 vehicles. Today, it is thousands yearly.

Toughest trucks made— Toughest lubricants used!

Four Wheel Drive Auto Company has been Cities Service customer for 20 years!

If you think things are tough on the trucks at your construction job or quarry, you should visit the Four Wheel Drive plant at Clintonville, Wisconsin.

There you'd see famous Four Wheel Drive trucks going through tests tougher than they'll probably ever meet on your job or anyone else's.

Ditto for the Cities Service Lubricants that Four Wheel Drive uses.

For what could be tougher on a truck and its lubricants than grinding up a hill in loose sand . . . sinking axle deep in a mud bath . . . driving diagonally across a washboard test ground . . . and climbing a 60 degree grade of dirt or gravel?

Make no mistake, Cities Service Lubricants meet the test . . . and have for the past 20 years at Four Wheel Drive Auto Company.

So it stands to reason that however tough the terrain and conditions on *your* job, Cities Service C Series Motor Oils and Trojan H Multi-Purpose Grease will more than make the grade . . . especially if you follow the expert recommendations of your Cities Service Lubrication Engineer.

For all the details, call the nearest Cities Service office, or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

The most important form is the inventory sheet that each field office manager sends in each month. The central staff checks these reports against the running inventory on the big board and follows up any discrepancies at once.

This continual checking keeps equipment losses to a minimum. In the 1½ yr that the system has been in full operation, only two small shop compressors have disappeared. This is a good percentage considering that the company operates more than 3,200 pieces of capital equipment in many parts of the world.

Each time a machine moves to a new job, the field manager makes out the short "Equipment Receiving and Shipping Report." This is in triplicate with one copy staying on the old job, one going to the new job, and one going to the central office. It is a further check on equipment movement.

Rex has a number of form letters that save time on routine items like orders to paint machines and requests for additional information.

He also has developed a friendly competition among field managers as to who can turn in the most accurate and neatest monthly inventories. The idea has caught on, and each month the managers try to outdo one another in the presentation of their reports.

There is no prize, but Rex sends out letters of comment, both favorable and unfavorable. Occasionally, when he gets an exceptionally good report, he makes photo copies and sends them to the managers as a model.

This game puts a little spice into what could be a dull monthly chore, and it aids immeasurably the work at the central office because the reports that come in generally are perfect down to the last detail.

Operating the System

Key man in the system is Rex, a 20-yr veteran in the company's equipment and material departments. Starting from scratch in March, 1954, he designed the forms, planned the layout of files, and made the Big Board.

It was a lot of work to collect the information from scattered sources and get it all on the proper cards. But once set up, the system is easy to operate.

Rex figures that he and two assistants spend 15 days each month keeping the files up to date. The rest of the time he spends in his other role of purchasing agent for the company.

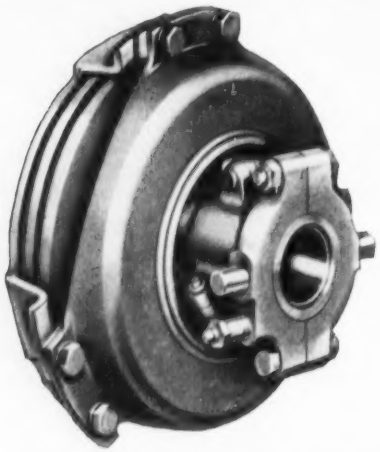
One big use of the system is to supply facts to company executives to aid their job planning. Some of the questions that come in are pretty unusual but so far no one has stumped him. What's more he usually can answer the question while the other party is still on the phone because he can get to the proper file in seconds.

Rex maintains a catalog of all company equipment of which about 20 copies are in the hands of key company personnel. As inventories change, revised sheets go out, to be inserted in the loose-leaf catalogs.

In addition, the department maintains a specification book for all equipment the company uses. This lists dimensions and weights for each piece and is useful for shipping purposes.

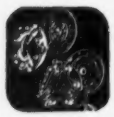
ROCKFORD

Single, Double or Triple Plate
CLUTCHES



Control POWER Better

The Over-Center, Spring-Loaded clutch shown above—when used in farm tractor LIVE POWER TAKE-OFFS—enables the harvesting unit to be controlled independently of tractor propulsion. It is used in various other ways and in other industries. And it is but one of many types and sizes of ROCKFORD friction CLUTCHES that have been designed and built to meet specific needs. If you have a special power control or power transmission problem, ROCKFORD clutch engineers will be glad to help you solve it.


Small Spring Loaded

Heavy Duty Spring Loaded

Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs

Speed Reducers

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER
1331 Eighteenth Ave., Rockford, Ill., U.S.A.
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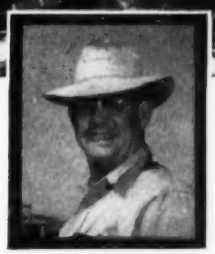
CLUTCHES



The piece of equipment shown working on a runway extension, Carswell Air Force Base, Fort Worth, Texas, is one of many owned by Mr. Brown. "The equipment I'm using on this job," explains Mr. Brown, "includes two 12-yard scrapers, three 15-yard bottom dumps, three D-8 tractors, one flat-wheel 10-ton roller, one set of 50-ton pneumatic rollers, one set of 60" tamping rollers, one self-powered rotary drill, two tractor-drawn 12-yard scrapers, one Model 6 power shovel, one D-8 push-tractor, three model 12 graders and one disc pole. We will have a total of 760,311 cubic yards of earth to move on this job, of which we have moved 512,000 yards."

Mr. James G. Brown, Contractor, Austin, Texas, says,

"Subtract a pound of dead weight from an earthmover and add a pound of dirt . . . that's why I'm in favor of USS HIGH STRENGTH STEELS!"

Mr. Brown has been in the construction business since 1932 and has bought machinery, including earthmovers, scrapers and tractors, for the past nine years. At the present time he owns $375,000 worth of construction equipment. He has a lot to say about increased payload and "built-in" durability, both obtainable through the use of USS High Strength Steels.

"Modern machines are obviously superior to the units I first used," says Mr. Brown. "We produce 30% more work with the same equipment as compared to the machines of ten years ago. My average unit will work about 3000 hours per year, operating at top speed, hauling heavy loads of 12 to 15 yards—usually overloads—as far as 12 miles over rough, rugged country. Since we drive faster with heavier loads, our equipment is subjected to far more serious shocks and stresses than we had in the past. While parts must be stronger than they were, the machine's components must be lighter in weight to permit these heavier loads. Despite the higher speeds, overloading and more work, our maintenance and down time is far less than it was ten years ago. The increased duty factor and the ability to haul greater payloads are two reasons why I'm definitely in favor of the use of high strength, weight-saving steels like USS High Strength Steels."

Design Manual

Our "Design Manual for High Strength Steels" contains comprehensive and practical information that you will find extremely useful in designing your product for greater economy and efficiency by the sound use of high strength steels.

For your free copy, write on your company letterhead, giving your title or department, to United States Steel Corporation, Room 2801, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

Also available from U. S. Steel: USS "T-1" Steel, a constructional alloy steel combining very high yield strength with toughness and weldability.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
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USS HIGH STRENGTH STEELS

USS COR-TEN • USS MAN-TEN • USS TRI-TEN "E"

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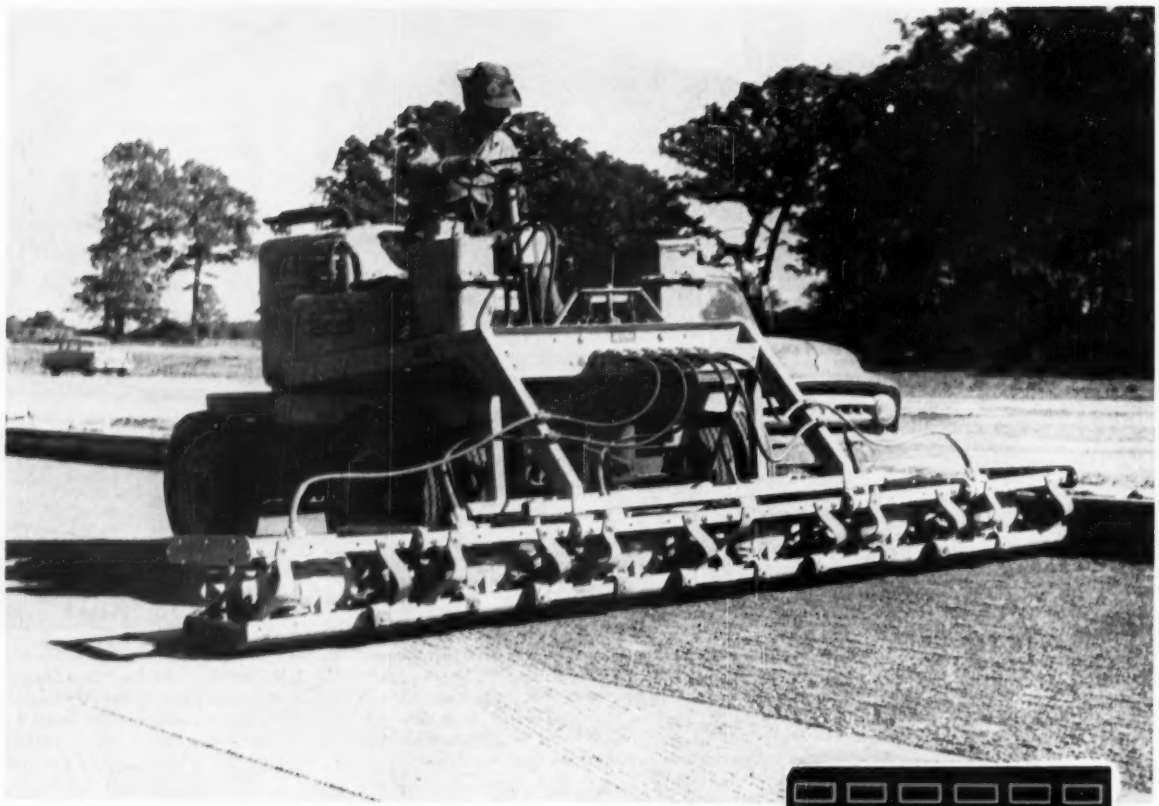
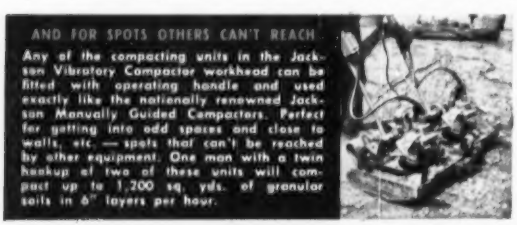
UNITED STATES STEEL



THE NEW JACKSON

HANDIEST and MOST PRODUCTIVE OF ALL COMPACTORS

If you are interested in the purchase or rental of a compactor for consolidating any of the materials normally used in macadam base or sub-base courses, granular soil fills or other projects, you will do yourself a big favor by investigating the new JACKSON MULTIPLE VIBRATORY COMPACTOR. It will give you 100% of specified density in a hurry because it is extremely powerful. Each unit in the workhead delivers up to 4200 THREE-TON BLOWS PER MINUTE. Total coverage is what you want it to be, up to 13′, 3″, and speeds are from 0 to 10 MPH. Moreover there is no machine that begins to match the JACKSON for quick, easy and ideal adjustment to each and every job requirement. This exceptional versatility saves a lot of time, eliminates lost motion and permits you to compact areas that other machines cannot touch. (See examples of unit arrangement at right.) It's a vastly improved version of the previous JACKSON COMPACTOR which was used most successfully on nearly all the nation's major paving projects. By all means inspect this machine or write for literature.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LUDINGTON • MICHIGAN

Pay Of College Teachers... Where The Russians Are The Capitalists

This editorial deals with a simple question about college faculty salaries: Which country pays its teachers better, Russia or the United States? It's a good question, with a sadly embarrassing answer.

That American college and university teachers are underpaid is not a novel observation. But what has happened to the economic status of their profession can be put in more candid terms. **As far as financial incentives are concerned, we have virtually socialized the academic profession.** Teaching has become such a poorly paid career, with so little prospect of material reward for outstanding performance, that it simply does not attract enough highly qualified young men and women.

Ironically, the Soviet Union has deliberately and successfully used capitalist incentives to improve its educational system. Although the Russians show an utter disregard of civil liberties, they pay their teachers well and confer on them all the prestige and privileges the Soviet society can offer. Russian professors, together with party officials and scientists, have become the privileged upper class of a supposedly classless society.

Incentives To Be A Teacher

To be a college teacher requires high intellectual competence and long, sometimes costly, formal training. Aside from the appeal of academic life, what incentive does college teaching offer bright young men and women?

In the U. S., the average faculty salary is little more than the average income of industrial workers. According to the National Education Association, the average faculty salary is about $5,240. College instructors receive $4,100, associate professors $5,730 and full professors $7,100. The average income of U. S. factory workers in 1956 was $4,580.

Actually, workers in many industries — steel, automobile and petroleum, for example—earn more on the average than college teachers. And skilled workers often earn more than full professors at some of our colleges and universities.

In Russia, on the other hand, the young Soviet graduate can see that it pays — and pays very well — to choose teaching as a career. The head of a department in a Russian university can command a salary of about 6,000 rubles a month.* This is about eight times the income of the average Russian worker, who earns 750 rubles a month.

The Russian professor comes off very well in terms of what his income will buy. It has been estimated that, based on Soviet consumption patterns, 6,000 rubles a month is worth about $7,200 a year — or higher than the average professor's salary in the U. S. Of course, it is difficult to compare living standards in two countries as different as the U. S. and Russia. But particularly in the field of science — where the salaries can run to 15,000 or more rubles a month — it is clear that the Soviet professor enjoys a higher real income than that offered his American counterpart by a much more prosperous economy.

Incentives To Be A GOOD Teacher

Russia also offers much higher premiums than the U. S. to those who attain distinction in teaching. Teachers at the university level earn significantly more than teachers in high schools, and university instructors can look forward to a sharply progressive rise in earning power as they

* *Soviet Education for Science and Technology* by Alexander Korol of the M.I.T. Center for International Studies.

How Faculty Salaries Compare With Industrial Wages

(Worker's Wage In Each Country = 100)

*Sources: Center for International Studies, M.I.T.; National Education Association; McGraw-Hill Department of Economics

advance to higher positions. The spread between the income of a full professor and the lowest academic position is greater than fifteen to one. In addition, full professors can earn a healthy bonus if they are elected to membership in the Russian Academy of Sciences.

In the U. S., by contrast, full professors on the average earn less than twice as much as beginning instructors. And many college professors earn less than public school teachers in large cities. Even a full professor's pay does not compare with earnings in other professions or in positions in industry requiring similar training. The point was well summarized in a recent speech by Marion B. Folsom, Secretary of Health, Education and Welfare: "It is nothing short of a national disgrace that we are discouraging people who want to teach by offering salaries that are far below the levels justified by their training and far below the levels which others are willing to pay."

Our colleges and universities, as well as our teachers, find themselves in a serious predicament. Faced with a shortage of both funds and teachers, they cannot reward distinguished performances. Limited resources for salary increases have gone predominantly to the lower ranks, so that an adequate number of teachers could be retained. Meanwhile, potentially fine teachers are being siphoned off into better paid occupations.

The shabby treatment of our teachers threatens to undermine, not only our educational standards, but our free enterprise system itself. There is the recent example of a liberal arts college which discovered that five of its graduating seniors were being offered starting salaries higher than those paid any of their professors. It would be surprising if experiences like this did not place a strain on the enthusiasm with which these professors deal with some key aspects of American capitalism.

Also important is the role education is playing in the cold war with the Soviet Union. The Russians have made great strides in raising the quality of their education — particularly in science and engineering. Both the number and the technical calibre of their graduates are impressive, as recent Soviet achievements testify. These successes owe much to the generous economic treatment the Russians have given their teaching profession.

A Standard For Faculty Pay

Earlier editorials in this series have outlined various ways American business can help relieve the financial plight of our colleges and universities. They have suggested that private contributions to higher education should average at least $400 million a year over the next ten years if faculty salaries are to be raised to adequate levels and our colleges are to be able to meet increasing operating costs.

Another standard for raising faculty salaries proposed by an American businessman is this: "When a teacher's income gets up to a point where you will suggest to your boy that he ought to give some thought to teaching as a profession, then we may be approaching the right figure."

Russia clearly has set her teaching salaries well above the "right" figure. We are nowhere near it. What this adds up to is that the Communists — not we — have become the shrewd capitalists in the vital field of education.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw
PRESIDENT

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Using a back-drag motion of the clam lip, with 4-In-1 *clamshell* action, this operator does a bank-shaping job he could do no other way—except by hand. The exclusive, big-capacity clamshell also gives "stand and fill" action—and self clean-out bottom dumping!

Spreading and leveling fill on Firestone Company property near Buffalo, N. Y.—the operator uses 4-In-1 *bulldozer* action to do fast, close grading. Working depth is regulated by "radius control" of the earth-rolling blade. Contractor: E. R. Granada, Cheektowaga, N. Y.

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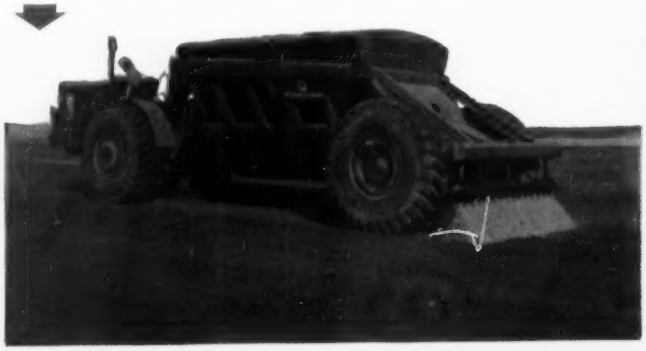
Part of the Payscraper and TD-24 crawler fleet on the 100% International-equipped Amarillo air base job. Schedule calls for moving 25,000 cu. yd. per double-shift day—placed on the fill in 3-inch lifts.

To deliver the 40,000 gallons of water per hour—required to compact the dry soil to 95% of original density—the International Distributor came to the contractor's aid and specially modified Model "75" bottom-dump wagons into 5,400-gallon tanks.



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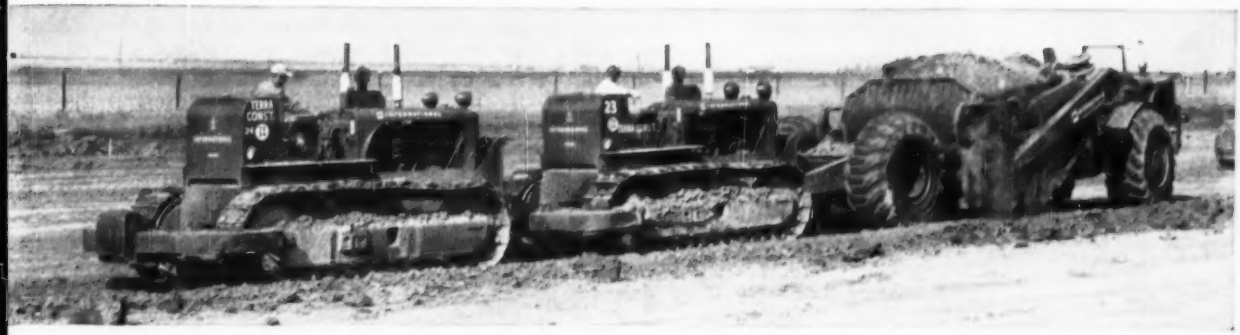

Tandem TD - 24 pushers profitably overcome the obstacle of loading heat-hardened hard-pan by reducing loading time by 44.4%!

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	Single TD-24 pusher	Tandem TD-24 pushers
Av. Loading Time:	1 min. 43 sec.	57 sec.
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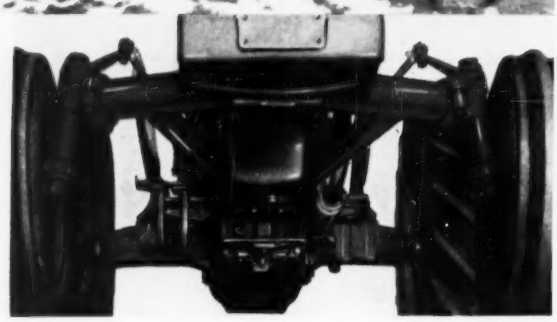

Heavy-duty front axle is one reason why the International 350 Utility tractor stands up to continuous loader work with ½ cu yd bucket taking "bites" up to ¾-ton. Greater built-in weight also increases trenching yardage with big-capacity backhoe.

With up to 1,000 pounds greater built-in weight, the International® 350 Utility tractor has a rated front-end loader capacity up to 50% higher than lighter weight rigs of similar power rating. Here's *brawn* and *power* for high production . . . to help you cut unit labor costs. Equally important, traditional IH *quality* minimizes down-time . . . reduces maintenance.

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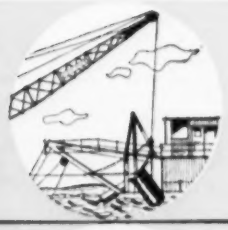

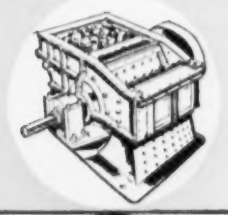

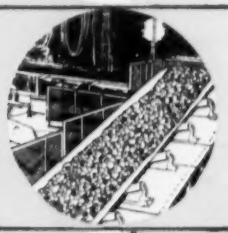

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Max-Wear Alloy Steel (13% manganese, 2% nickel) is *work hardening!* This means the more it's used the harder the surface becomes (up to 500/550 BHN). But only the surface hardens; the interior of the steel is unaffected. As a result, Max-Wear parts have truly wear-resistant surfaces *plus* high strength and toughness internally.

When you make parts like those shown with Crucible Max-Wear, you reduce downtime, cut repair and replacement costs. For Max-Wear resists repeated heavy impacts and abrasion—just what you need on jobs where equipment takes a bad beating.

Crucible Max-Wear is especially practical for repairs in the field. It can be formed cold or at *red heat*, and is easily shear or torch cut and welded. No annealing is necessary after these operations—a big advantage in the field.

Max-Wear is now available in rounds, squares, plates and special grouser shapes. If you are looking for an easy-to-use alloy steel that will give you longer service under impact, wear and abrasion, try Crucible Max-Wear. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

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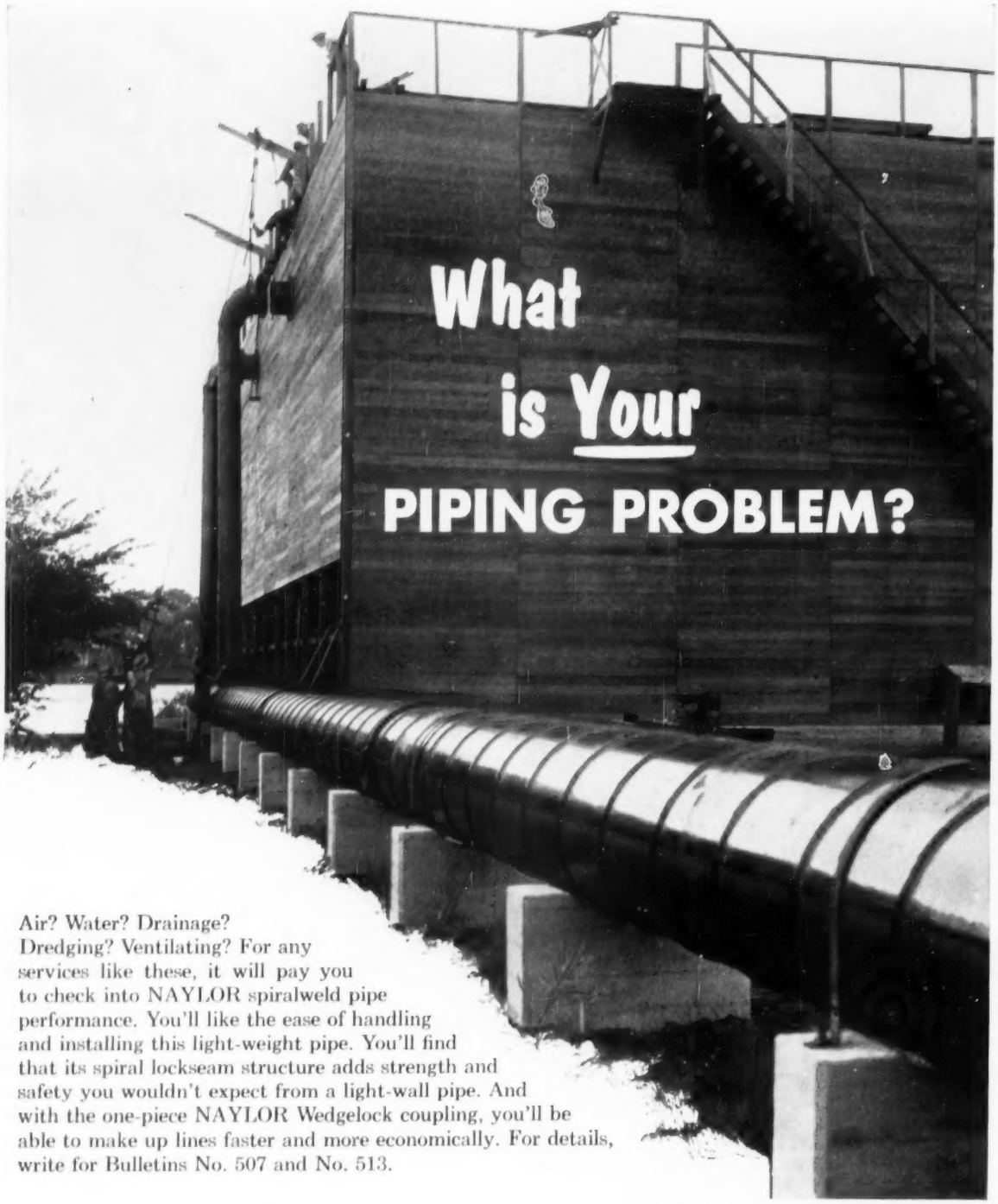

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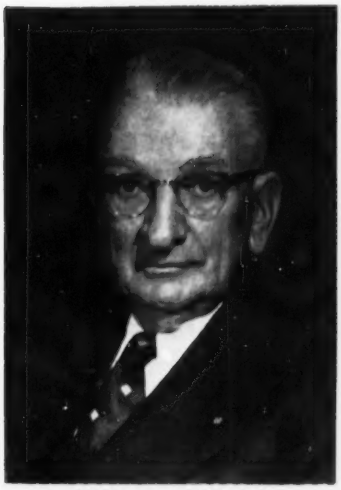
Construction Men in the News . . .



PETER F. CONNOLLY

FRANCIS DONALDSON

Moles Make Annual Awards

PETER F. CONNOLLY and FRANCIS DONALDSON, both heavy construction specialists, will receive the 1958 Mole Awards for outstanding contributions to the construction industry. The Moles, an organization of leading heavy construction men, will make the awards to the two men at an annual awards dinner to be held in New York City next month.

Awards are made each year to a member and a non-member of the group. Connolly is a charter member of the Moles. He has been in tunnel and pneumatic caisson work since 1902 when he went to work on a Boston tunnel job. He organized his own business in 1908 and, through the years, built many subways, major water tunnels, and difficult bridge foundations. Recently, his firm helped build the spectacular piers for the Harlem River Railroad Crossing in New York City, generally considered one of the most difficult caisson jobs in the United States.

Donaldson, the non-member to be honored in the Mole tradition, began a heavy construction career one year earlier than Connolly. He went to work for Frank Dravo in 1901. His first job was the design of a timber shoe for a brick caisson. Eight years later he became Dravo's chief engineer.

Between 1918 and 1926, Donaldson was on his own as a contractor and consulting engineer. But in 1926, he joined Mason & Hanger and Silas Mason Co. as chief engineer. He has done outstanding work in New York City on the foundations for the New Jersey tower of the George Washington Bridge, and construction of the East River tunnels, the Lincoln Tunnel, and the Brooklyn Battery Tunnel. He has been vice president and director of the firm since 1936.

ALBERT DIGIACINTO and DONALD B. MCKINLEY are new vice presidents of Spencer, White and Prentis, Inc., of New York, heavy foundation contractors.

DiGiacinto, general superintendent with SW&P for the past five years, has been with the firm for 22 years, starting in 1935 as an engineer on a Mississippi River dam job. He was made general superintendent in July 1952.

McKinley, as vice president in charge of production, will assume DiGiacinto's duties as general superintendent. He returns to SW&P after a 5-yr absence during which he was an officer in the Charles H. Sells Co. He was with SW&P from 1936 through 1942 and from 1946 through 1952. From 1942 through 1944 he was chief engineer for the New York State Planning Commission. He served with the U.S. Navy Civil Engineer Corps during WWII.

WILLIAM G. HAWKINS of the Winston Bros. Co., Minneapolis, Minn., is the newly elected general chairman of the Construction Section of the National Safety Council for the 1957-58 term.

Other officers, elected at a recent meeting in Chicago, are: Henry J. Massman, III, of Massman Construction Co., Kansas City, Mo., vice general chairman; W. M. Goldston of Goldston Co., Corpus Christi, Tex., vice chairman, heavy construction division; Sheldon Carlson of Park Construction Co., Minneapolis, Minn., vice-chairman, highway division; Frank R. Rundell of Frank R. Rundell Co., Austin, Tex., vice chairman, building division; Earl W. Horttor, Kansas City, Mo., vice chairman, home building division; Hy Cox of Caterpillar Tractor Co., Peoria, Ill., vice chairman, special division.

Robert L. Moore of Lumbermans Mutual Casualty Co., Chicago, Ill., was elected secretary. Elected to life memberships of the executive committee were Samuel R. Bishop of Silver Spring, Md., and H. B. Alexander of Harrisburg, Pa.

HARVEY SLOCUM, veteran dam builder, will join the Morrison-Knudsen Company of Boise, Idaho, as a consultant on project planning and dam and power plant construction.

Slocum currently is finishing up Bhakra Dam in India. Best known for his skill as an estimator of dam construction costs, he has, during his career, supervised the pouring of more than 20,000,000 yd of concrete.

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This all-purpose water hose is long on wear and value. Easy to handle, it has a black, high-grade rubber cover that resists sun, weather, cracking and peeling. Black, non-porous tube.

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Here's a rugged, long-lasting hose for conducting water under pressure or suction. It resists kinking and crushing and has good sun, weather and abrasive-resistant qualities. Tube resists action of water containing light concentrations of alkalies, acids, grit and sand.

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Distributor Appointments

Bucyrus-Erie Co.: Two new distributors are announced. They are: Sanford Tractor & Equipment Co. of Reno, Nev.; and Power Shovel Co. of Indianapolis, Ind.

Koehring Co.: The Kwik-Mix Division has appointed the following three distributors: Indiana Products Co. of South Bend, Ind.; Carbeau Scaffolding, Inc. of Brookline, Mass.; and Construction Equipment Sales and Service, Orange, Conn.

Chrysler Corp.: The Industrial Engine Division has appointed five new distributors: Service Motor Parts & Supply Co., Harrisburg, Pa.; Klug Farm Equipment of Eau Claire, Mich.; Duncan Company Engine Rebuilders, Inc. of Kansas City, Mo.; DiPietro-Kay Co. of West Hartford, Conn.; and Clark Dodge Truck Co. of Oklahoma City, Okla.

Diamond T Motor Car Co.: Kaer Truck and Equipment, Inc. of Denver, Colo., and Slattery, Inc., of Akron, Ohio, have been appointed distributors for the company's line of motor trucks.

Clark Equipment Co.: The Construction Machinery Division has appointed Hawkeye Machinery Co. of Des Moines, Ia., as distributor.

The Warner and Swasey Co.: Gradall Division has appointed The Caprock Machinery Co. of Amarillo, Tex., as distributor for north-western Texas.

On the Sales Front

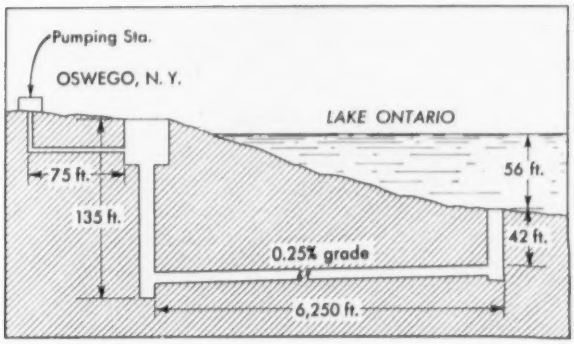
American Hoist & Derrick Co.: A. J. Winters has been appointed factory representative for Missis-

It's not just a bit of metal you're buying... it's FEET OF HOLE!

Three Ingersoll-Rand JR-38B Jackdrills with 1¾" Carset Jackbits, drilling through hard sandstone in the 8' diameter Oswego Water Tunnel. Thirty holes were drilled for each round, and two rounds were drilled, blasted and mucked per shift.

CARSET JACKBITS average 500 FEET

in Hard Sandstone on the OSWEGO TUNNEL JOB



Simplified schematic diagram of the Oswego Water Tunnel project. Drilling started with the 135 ft. access shaft and water riser. The upper 33½ ft. is square, the remainder being circular, 12 ft. in diameter. The 6,250 ft. tunnel, 8 ft. in diameter, was driven on a 0.25% up grade, to a point more than a mile out under the lake, ending 42 ft. below the lake bottom under a 56 ft. depth of water. A riser was driven upwards to within a few feet of the lake bed and the rock plug blasted free after which a strainer and inlet structure were set in place over the riser, a sump below tunnel line catching the muck. A 75 ft. tunnel 30'-0" below ground level carries water from the riser to the pumping station. Roof bolts were set in the main tunnel as a safety measure.

EXTENDING more than a mile out under the waters of Lake Ontario, the Oswego Water Tunnel brings an abundance of offshore fresh water to the city of Oswego, N. Y.

Driven by Herbert F. Darling, General Contractor, Williamsville, N. Y., this 6,250 ft. long tunnel, 8 ft. diameter, was drilled with Ingersoll-Rand JR-38B Jackdrills and 1¾" Carset Jackbits. By sharpening the bits with machine precision on an I-R Jackbit Grinder and maintaining correct cutting angles bit footages were boosted from 300 to 500 feet. Rock was hard gray sandstone.

On-the-job performance like this — comparing *feet of hole per dollar of bit cost* — is the only true test of rock bit economy. Measure Carset Jackbits by this yardstick on any job, in any kind of rock. Compare them with any other bit you've ever used. The results will speak for themselves.

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continued

sippi, Arkansas, Oklahoma and part of Texas.

Gardner-Denver Co.: Robert H. Ganz has been moved from the Toronto, Ont., office to become manager of the Teterboro, N. J., office. He will be replaced as district manager in Toronto by Robert W. Hoke.

The General Tire & Rubber Co.: The following six sales appointments are announced: W. C. Weirath, manager of commercial tire sales; M. E. Majors, west coast manager, national account sales; J. S. Peixotto, west coast manager, truck branch operations; M. J. Sweeney, manager of Pittsburgh sales division; W. F. McNurney, Boston division manager; and N. P. Stromdahl, St. Louis manager.

H. K. Porter Co.: Four new appointments: J. H. Wyres becomes sales manager of the W-S Fittings Division; W. J. Hannon becomes Chicago sales manager in the Leschen Wire Rope Division; C. C. Wallace, wire rope sales representative for Washington, Montana, Oregon and Idaho; Thomas E. Turner, wire rope sales representative for Virginia, West Virginia and North Carolina.

Insley Mfg. Corp.: F. L. Johnson is now district sales representative for Oregon, Washington, Idaho, Montana, Alaska, British Columbia, and Alberta.

Chain Belt Co.: Three new districts—the central territory, the Ohio Valley territory, and the Rocky Mountain territory—have been formed by Chain Belt's Rex Construction Machinery Div. Richard Leek, Roy McNeil and Edwin Extract recently were named to sales appointments in the new territories. They will be responsible to Robert Krikorian, sales manager.

Iowa Mfg. Co.: Floyd Jones is the new district sales representative for the Cedarapids line in the southeastern states. His headquarters are in Atlanta, Ga. The Cedarapids line includes a wide range of aggregate producing and bituminous paving and mixing equipment.

continued on page 147

For more details about the . . .

NEW GUARANTEED AVAILABILITY PLAN

see a participating Blue Brute distributor

ALABAMA
Ben Williams Equipment Company—Andalusia
H. S. Salmon & Company—Birmingham
CALIFORNIA
West Coast Engine & Equipment Co.—Berkeley
LeRoi-Rix Machinery Company—Los Angeles
L. E. McDowell Co.—Richmond
H. P. Kingsley Company—San Bernardino
Vern & Flynn's Rental Service—San Carlos
Kenton Equipment Company—San Diego
COLORADO
Power Equipment Company—Denver
CONNECTICUT
Construction Equipment Company—Wilson
FLORIDA
Julien P. Benjamin Equipment Co.—Jacksonville
A. W. Thomas Construction Machinery—N. Miami
Highway Equipment & Supply Co.—Orlando
GEORGIA
Tractor & Machinery Company—Atlanta
ILLINOIS
Riverside Sales Contractors Equip.—Brookfield
Capital Tractor & Equip. Co.—Morton, Springfield
INDIANA
Reid-Holcomb Co.—Indianapolis, Evansville, South Bend
KANSAS
Southwest Equipment Company—Dodge City
MAINE
N. A. Burkitt, Inc.—South Portland
MARYLAND
Elphinstone, Inc.—Baltimore
Free State Equipment Co.—Baltimore
Washington, D. C.
MASSACHUSETTS
Morrissey Brothers Tractor Company—Burlington
Northampton, Woburn
George F. Blake, Inc.—Worcester
MICHIGAN
Great Lakes Equipment Company—Muskegon
MINNESOTA
Minneapolis Equipment Company—Minneapolis
MONTANA
Caird Engineering Works—Helena
NEW HAMPSHIRE
New Hampshire Explosives & Machinery Co.—Concord
NEW JERSEY
Miller Equipment Company—Dunellen
American Air Compressor Corp.—North Bergen
NEW YORK
Murray Construction Equipment Co.—Buffalo
Heil Equipment Company—Long Island City
NORTH CAROLINA
Spartan Equipment Company—Charlotte
OHIO
Brinker Supply Co.—Cleveland, Columbus, Dover
Beasley-Holmes Company—Toledo
OKLAHOMA
Herd Equipment Company—Oklahoma City
OREGON
Western Equipment Company—Eugene, Portland
PENNSYLVANIA
American Equipment Co.—Mechanicsburg
Metalweld, Inc.—Philadelphia
RHODE ISLAND
BMG Equipment Company—Providence
SOUTH CAROLINA
Gaines W. Harrison & Sons—Columbia
SOUTH DAKOTA
Sioux Road, Inc.—Rapid City, Sioux Falls
TENNESSEE
Carey Equipment Company—Memphis
TEXAS
Abilene Equipment Company—Abilene
Tom W. Carpenter Equipment Co.—Amarillo
G. A. Coffey Company, Inc.—Dallas
Pearce Equip., Co., Inc.—Houston, San Antonio
VIRGINIA
Cary Hall Machinery Company—Salem
Industrial Service Company, Inc.—Norfolk
Knight Equipment, Inc.—Richmond, Arlington
WASHINGTON
Star Machinery Company—Seattle, Spokane
WEST VIRGINIA
Equipment Distributors, Inc.—Charleston
WISCONSIN
Hunter Tractor & Machinery Co.—Milwaukee, Green Bay
WYOMING
Keremi Tractor & Equip. Co.—Cheyenne, Casper
CANADA
Precision Machine & Foundry—Calgary, Alberta
West Coast Equipment, Ltd.—Vancouver, B. C.
Hub Equipment, Ltd.—Brockville, Cornwall and Toronto, Ont.
Modern Machinery, Ltd.—Quebec City and Montreal, Quebec

◀ *See your nearest Blue Brute distributor.*

An air tool on free loan if your Blue Brute needs repair!

BLUE BRUTE DISTRIBUTORS ANNOUNCE NEW GUARANTEED AVAILABILITY PLAN

The most important thing about an air tool is to keep it out on the job working.

That's why Worthington Blue Brute tools are built for ruggedness—for ability to stand up under day-in, day-out punishment.

Another progressive step in keeping Blue Brute air tools on the job has just been announced. Under the terms of a new Availability Plan, we will lend you an air tool free if any of your hand-held Blue Brute tools is in our shop for repair.

Greater tool stocks, parts inventories

To be sure the tool you need is there when you need it, we have recently enlarged our stock of standard air tools and accessories. We also carry a large inventory of parts so that repairs or replacements can be made quickly and inexpensively.

For greater profits keep your air tools on the job by (1) buying Blue Brute tools and (2) taking advantage of the Guaranteed Availability Plan. For complete details on the new plan, ask your nearby Blue Brute distributor for Bulletin G-2500. H74A

WORTHINGTON

PETER KIEWIT SONS' CO. produces:

Aggregate and mineral filler for bituminous surface course

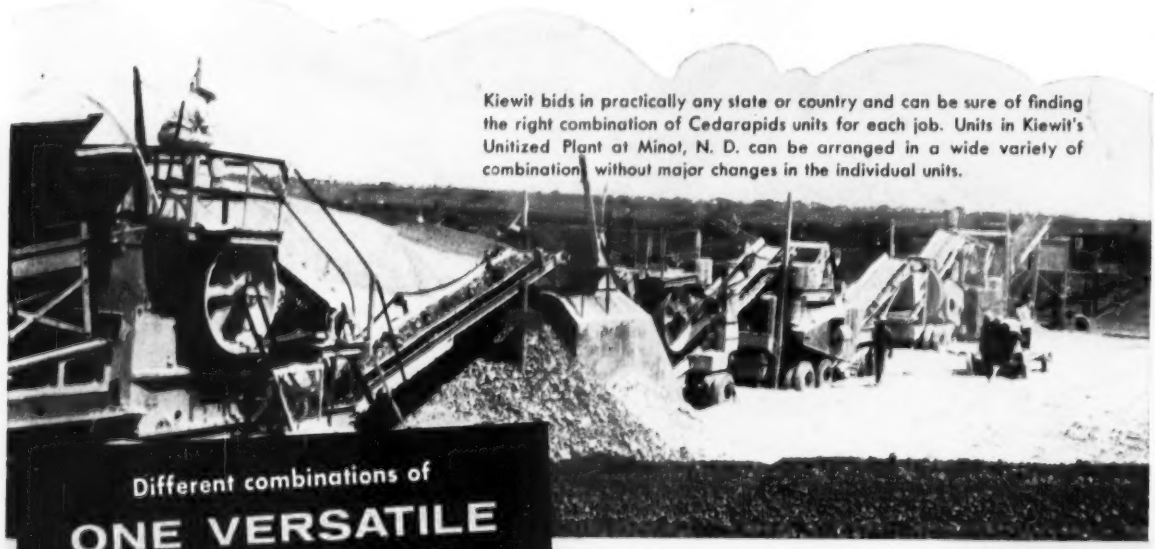
In one arrangement of Cedarapids Units, large size pit material is initially crushed by a 2540 Portable Primary Jaw Crusher and further reduced by an 1836 Primary Jaw. Material then goes through an Intermediate Roll Crusher Scalping Unit and finally a Roll Crusher Secondary Plant. With this efficient combination of Cedarapids units, Kiewit produces minus ⅜" fine aggregate containing rock dust mineral filler, and ¾" surface course aggregate.

Three sizes of aggregate for concrete and binder course

In a different combination of units, the same Cedarapids Unitized Plant produces 1½" concrete aggregate, ¾" concrete aggregate, 1" hot-mix binder course aggregate.

Washed aggregate

From stockpile and double log washer, a Cedarapids 24" x 50' Conveyor delivers aggregate to a Cedarapids 4' x 12' triple-deck Horizontal Vibrating Screen installed over the loading bin and equipped with spray bars for final washing.



Kiewit bids in practically any state or country and can be sure of finding the right combination of Cedarapids units for each job. Units in Kiewit's Unitized Plant at Minot, N. D. can be arranged in a wide variety of combinations without major changes in the individual units.

Different combinations of

ONE VERSATILE CEDARAPIDS UNITIZED PLANT

supply many sizes of concrete and hot-mix aggregates for Minot Air Force Base

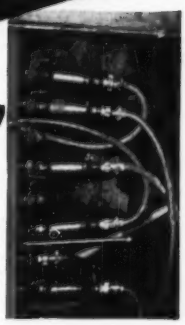
The flexibility of this Cedarapids Unitized Plant, and the contractor's ingenuity in varying the unit combinations to meet specifications for both concrete and hot-mix aggregate, assure maximum efficiency at low production cost.

There's a combination of Cedarapids crushing, screening, scalping and washing units that will solve your problem by producing almost any quantity, any specification, and meet practically any production condition. And remember, 100% portability lets you take them where the best contracts are. Ask your Cedarapids distributor to explain Unitized operation and show you how you'll profit.

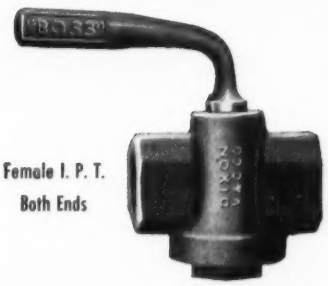
Cedarapids — Built by IOWA

IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U.S.A.

Avoid One Cause of Air Line Leaks and Pressure Loss



"BOSS"
Self-Honing
AIR VALVES



Female I. P. T. Both Ends

Built to withstand the hard knocks of mining and construction service, "BOSS" Valves are also ideal for general use on pipe lines, hose lines, compressor tanks, etc., and for the handling of water. They do not require packing.

Bronze plug firmly seated by spring tension against harder metal of valve body is automatically honed to perfect seat as handle is turned. A straight, full-flow opening extends through valve body and plug, providing greater capacity with no friction loss. Valve opens or closes by a quarter turn of the handle.

INTERNALLY ATTACHED HANDLE—In sizes ¾" to 1½" valve stem and handle are combined in a strong one-piece forged steel unit which is anchored to the bronze plug within the valve body. This patented feature eliminates stem and handle breakage. Sizes ¼", ⅜", ½" and 2" have externally riveted handles.

Male I. P. T. Both Ends

Stocked by Manufacturers and Distributors of Industrial Rubber Products

DIXON
Valve & Coupling Co.
GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA.
BRANCHES—CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON
DIXON VALVE & COUPLING CO., LTD., TORONTO, Associate Companies

SALES AND SERVICE...

continued from page 144

In the Main Office

J. I. Case Co.: Herbert H. Bloom, former president of Massey-Harris-Ferguson, Inc., has been elected president of J. I. Case International. T. A. Haller will take over the newly created post of Vice President of Engineering. Replacing Haller as Director of Engineering will be P. H. Spennetta.

Joy Mfg. Co.: William L. Wearly has been elected President of the company. He replaces John Lawrence who resigned. Wearly will be replaced as executive vice president by A. B. Dastrup.

Allis-Chalmers Mfg. Co.: Harold S Silver has been named general attorney. Silver joined the company in 1933 and has been general patent attorney since 1946. He holds degrees of master of patent law and bachelor of electrical engineering. In his new post he succeeds H. W. Story, vice president, who is retiring.

Heltzel Steel Form & Iron Co.: Ernest A. Gardner, formerly sales manager for industrial sales, has been named director of engineering for Heltzel and all affiliated companies. Gardner, an engineering graduate of Fenn College, Ohio, has been with Heltzel since 1956.

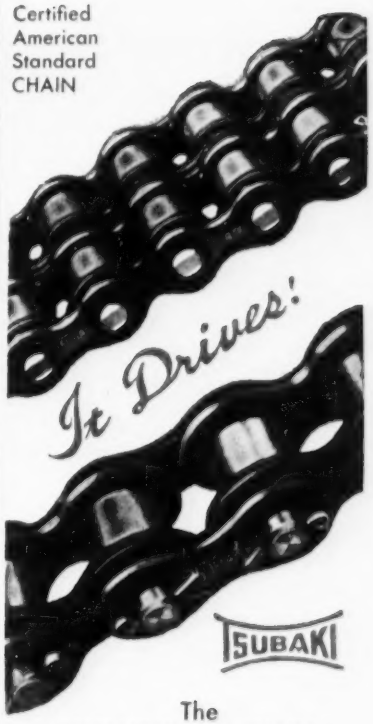
Associations

Expansion Joint Institute: This is a new association formed by manufacturers of premoulded joint materials to set up research facilities, recommended practices, and standards for the industry. President of the new group is W. C. Fischer of Servicised Products Corp. Aurora, Ill., will be the headquarters of the Institute.

Special Mention

Iowa Mfg. Co.: Factory Service Schools for 1958 will be run in three sections during the month of January, 1958. There is no charge for the course, other than travel and living expenses. The school will be held at the company's main plant in Cedar Rapids, Ia., and inquiries should be sent to the Service Engineering Dept., Iowa Mfg. Co., Cedar Rapids, Ia.

Certified American Standard CHAIN



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TSUBAKIMOTO CHAIN
Mfg. Co., Ltd.
620, Tsurumi-cho, Joto-ku
OSAKA, JAPAN
Telegram: TSUBAKI
All inquiries receive prompt and careful attention.
WRITE FOR ILLUSTRATED BULLETIN
Dealerships open!

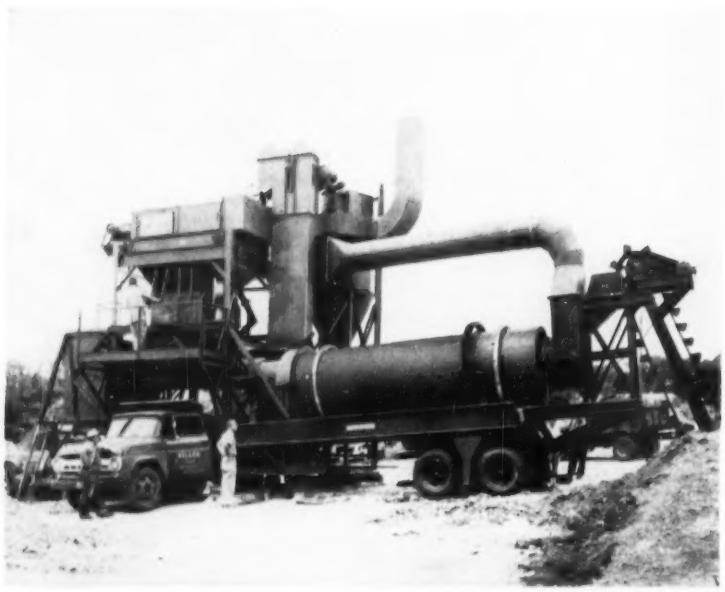
Construction Equipment News...

Squats for Loading

LeTourneau-Westinghouse has designed a new low-silhouette version of its popular 11-ton D Tournapull rear dump for jobs where clearance is important. The unit is only 8 ft 11 in. high when hauling and only 11 ft 8½ in. in the dump position. The design also incorporates a control that allows the bowl to be moved downward until loading height is only 5½ ft—low enough for the smallest loaders.—**LeTourneau-Westinghouse Co., Peoria, Ill.**

Roller Passes Test

In controlled tests, Bros' new 30-ton self-propelled pneumatic roller produced densities ranging from 101.5 to 103% on asphalt surfaces in one or two passes. Called the SP-370, the roller has a 95-hp diesel engine and torque converter drive to provide smooth power to the drive wheels. The roller has three wheels in front and four wheels in the rear, with full oscillation providing an even flow of compaction pressures. Both smooth face and tread tires are available.—**Bros, Inc., Road Machinery Div., 1057 10th Ave. S.E., Minneapolis, Minn.**



Mounts on Trailer

A one-ton batch-type asphalt plant that is really portable—the trailer-mounted TM Mobile Mixer—is now being produced by Standard Steel Corp. Self-contained on a single trailer frame, the plant is designed for on-the-job mixing in out-of-the-way places. It can be erected and made ready to produce asphalt mix in hours. The plant has a built-in powered erecting device that raises the entire mixing and gradation section from the transport to the operating position. Simplified push-button controls permit one man to operate the plant. To assure positive weight control, the aggregate weigh hopper and the asphalt bucket are suspended on springless dial scales.—**Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 58, Cal.**

Carries the Voice

The Motorola Power Voice megaphone consists of a detachable microphone, amplifier, batteries, and speaker—all contained in one package weighing only 8 lb. The megaphone, which has a range of from ½ to ¾ mi, is powered by standard flashlight batteries and six transistors. To use the megaphone, the operator squeezes the trigger on the pistol grip or presses a button on the microphone. **—Motorola, Inc., 4501 W. Augusta Blvd., Chicago, Ill.**

Fast and Versatile

Bucyrus-Erie's new 11-B excavator, mounted on a six-wheel drive carrier that provides road speeds up to 47 mph, converts easily from a 10-ton lift crane to clamshell, dragline, hoe, or shovel. To cut maintenance problems, principal components such as the swing circle and hoist shafts are unit-designed so they can be lifted out in one piece for servicing. Another feature is a new two-section cab. One section is for the operator and the other section contains main machinery and the power plant.**—Bucyrus-Erie Co., South Milwaukee, Wis.**

1958 Dodge Trucks

Built for rugged service, this new Dodge T700 truck, shown carrying a Heil dump body, is powered by a 354-cu-in. V-8 engine that develops 218 hp. Maximum body and payload allowance is 23,300 lb and the total gross vehicle weight rating is 32,000 lb. A five-speed synchro-shift transmission that works in combination with a three-speed auxiliary transmission gives the truck flexibility for both on- and off-the-road applications. The T-700 is one model in the 1958 Dodge line, which offers trucks with gross vehicle weights ranging from 5,100 to 46,000 lb. Dodge engines are rated at 113 to 234 hp, the biggest spread in Dodge history.**—Dodge Truck Div., Chrysler Corp., 2751 East Jefferson St., Detroit 7, Mich.**

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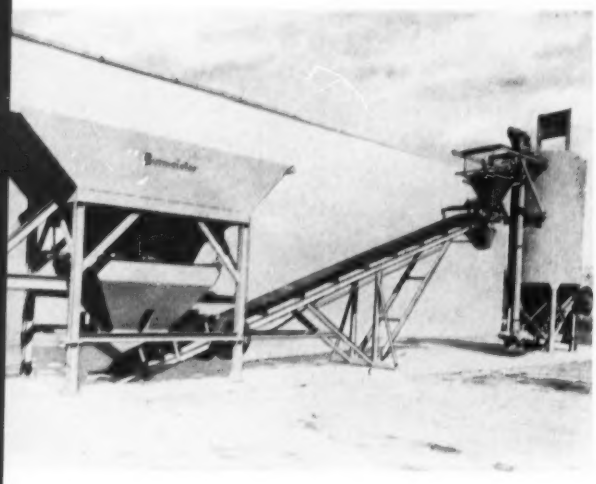
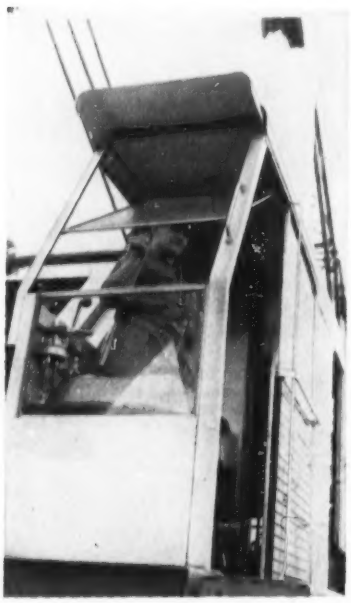


Small Plant With Big Capacity

A smaller version of the Porto-Plant has been introduced by the recently acquired Burmeister Div. of the Chain Belt Co. The new one-man-operated plant, called the model 60, can produce between 400 and 500 yd of concrete a day. Storage capacity is 25 to 30 tons of aggregate and 170 bbls of cement. Features of the new plant include plug-in electrical and air connections and built-in air compressor, automatic water metering system, and dial scales.—**Burmeister Div., Chain Belt Co., Milwaukee, Wis.**

Is This Tomorrow's Tractor?

This small tractor, mounted on balloon-like tires, might well be the forerunner of tractors of the future. With its low pressure tires (5 lb per sq in.), the vehicle can absorb or conform with uneven surfaces and glide over soft ground. "It takes the roughest, smoothest, sandiest, or steepest terrain in its stride," according to the manufacturer. The tractor is mounted on Goodyear Terra-Tires, each 24 in. in dia and 24-in. long. The tractor weighs 2,800 lb.—**Atwood Vacuum Machine Co., Rockford, Ill.**



Operators Helped Design Thew's Cab

Thew's new cab design for its 2½-yd Lorain 85A excavator includes many ideas suggested by the men who will operate the rig. An extensive survey taken among members of the International Union of Operating Engineers showed that they wanted: (left, above) a front window that slides out of the way above the operator's head and an overhead visor that cuts off the sun but retracts to provide upward vision; (center) a sliding door behind the operator that seals the cab from the machinery's heat, noise, and vibration; (right) big 3x3-ft side windows that roll out of the way.—**Thew Shovel Co., Lorain, O.**

continued on page 153

M.S.A. BRIDGEMAN'S SAFETY BELTS

Designed and tested for dependability and comfort. Quick release type buckle. Special tongue arrangement prevents accidental opening. All hardware is drop-forged steel. Removable leather scabbard. Complete size range.

M.S.A. BODY-TYPE SAFETY BELTS

Flexible, rugged, yet comfortable on the job. Ideal for close quarters. Available in all three types of webbing. All Dee Rings are equipped with metal liners of 20-gauge galvanized steel. All sizes.

M·S·A

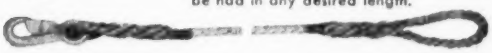
a single source for all your Safety Belts

M.S.A. HARNESS TYPE WEB SAFETY BELTS

This type of belt gives extra body support, and the adjustable shoulder straps distribute the weight more evenly—available in genuine leather or webbing.

STEEL TAIL LINE

Strong belt anchor made of light flexible steel cable with drop-forged snaps at both ends. Quick to attach or release. Standard cable is 6 feet long, but may be had in any desired length.



LANYARD

Available in ½", ⅝" or ¾" rope with drop-forged snap at one end, loop at other, or any combination required. All splices have four tucks, wrapped ends. Furnished in any length desired.

MSA

SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem... his job is to help you.

backed by a single responsibility

Because there is no *one* safety belt that gives the best protection for *every* job, matching the belt to the need is all-important.

You get this *selection* advantage at M.S.A. Our complete line of safety belts lets you satisfy your specific requirements for safety belt protection . . . you get the belt that's built for the job.

You'll be interested, too, in the materials available. M.S.A. Leather Safety Belts are made from the highest grade harness leather, inspected and tested. *Diamond-Stripe Webbing Belts* are tough, yet comfortable, and are tested at 4,500 to 5,000 pounds. *Straco Web Safety Belts* have a tensile strength of 2,800 to 3,600 pounds. Both these materials are treated to resist moisture, mildew and the effects of paint. *Neo-Web Belts*, made of high tensile woven cotton webbing, and molded with a mixture of neoprene and special rubber, for chemical resistance, are tested at 2,800 to 3,200 pounds. All hardware on M.S.A. Safety Belts is tested to 5,000 pounds.

Get the facts on our complete line now. Our bulletin gives manufacturing details, describes and illustrates all M.S.A. Safety Belts. Write for your copy.

MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pa.

At Your Service: 76 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA, LIMITED

Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, Sydney, N.S.
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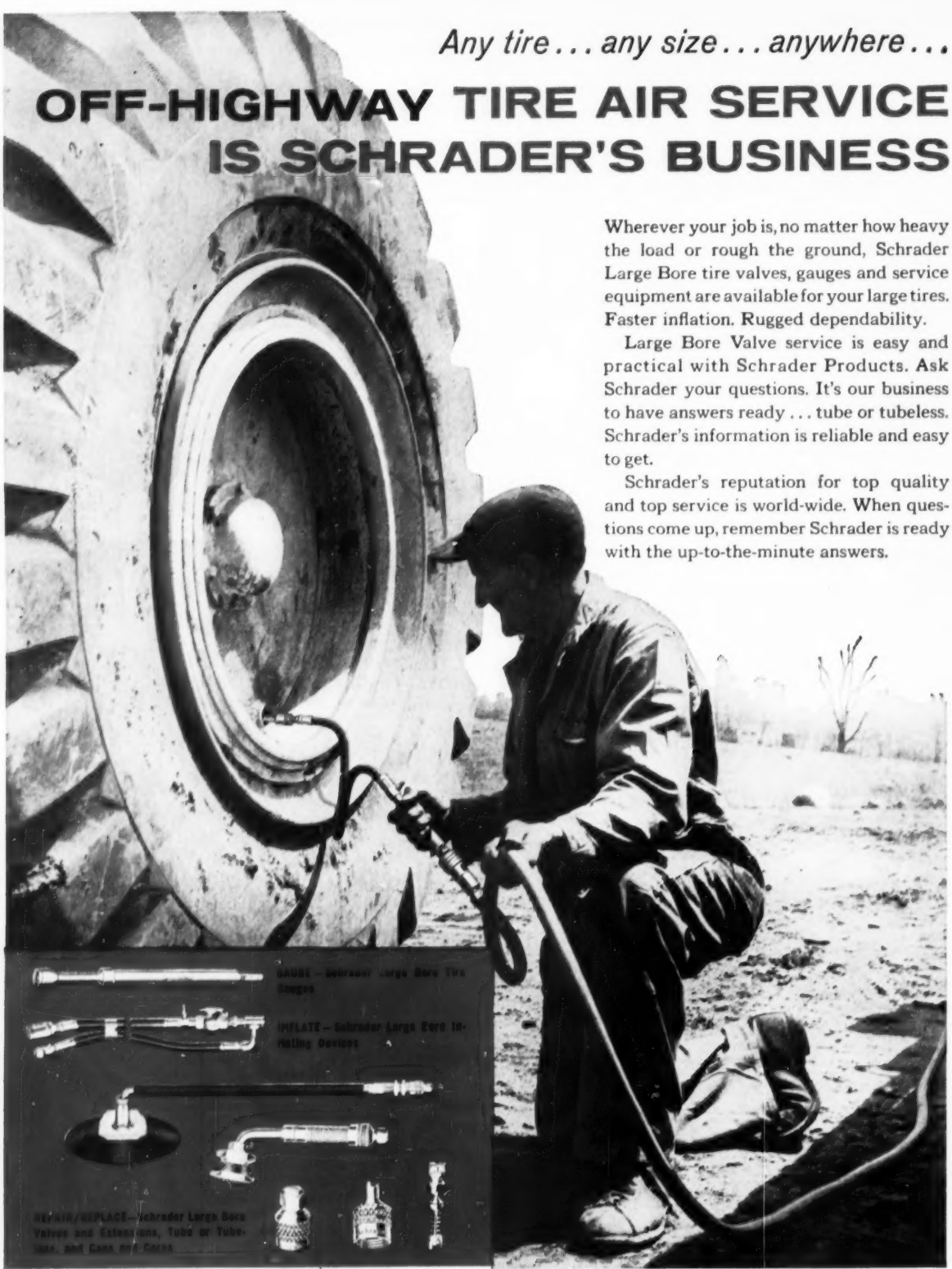
Any tire . . . any size . . . anywhere . . .

OFF-HIGHWAY TIRE AIR SERVICE IS SCHRADER'S BUSINESS

Wherever your job is, no matter how heavy the load or rough the ground, Schrader Large Bore tire valves, gauges and service equipment are available for your large tires. Faster inflation. Rugged dependability.

Large Bore Valve service is easy and practical with Schrader Products. Ask Schrader your questions. It's our business to have answers ready . . . tube or tubeless. Schrader's information is reliable and easy to get.

Schrader's reputation for top quality and top service is world-wide. When questions come up, remember Schrader is ready with the up-to-the-minute answers.



Schrader®
a division of SCOVILL

A. SCHRADER'S SON · BROOKLYN 38, N. Y.
Division of Scovill Manufacturing Company, Incorporated

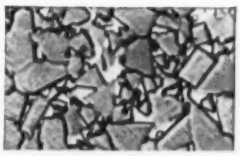
FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

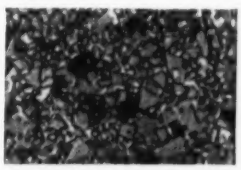
36-IN. FINISHER—White's new 36-in. troweler has a 2¾-HP engine that turns four combination float and finish blades. The new troweler features a patented method of mounting the blades so that they can be removed for cleaning in seconds without tools. Another feature is a detachable ring guard that comes off easy when the machine is to be moved through narrow openings.—**White Mfg. Co., Elkhart 6, Ind.**

SHOP VACUUM—A good maintenance shop is usually a clean one. The Shop-Vac vacuum cleaner has a 2½-in. dia hose, handle, and nozzle that won't clog while picking up debris from shop floors or machinery. Powered by a ⅞-hp ball bearing-equipped motor, the vacuum is completely portable and self-contained. It comes with a 28-gal fibre drum for debris and it can be used with

Longer bit life—with *new* Sandvik Coromant Bits



Sandvik Coromant Tungsten Carbide. (Microphoto) Uniformity of size, even distribution of grain are marked. Free from porosity and impurities—therefore stronger, longer-lived.



Low quality Tungsten Carbide. (Microphoto) Black marks are contaminations caused by deficient production control. They weaken the carbide, reduce its working life.

NEXT time you buy bits, specify Sandvik Coromant because they give you more footage per bit, lower drilling costs. Here's why:

1 Only first-quality tungsten carbide is used—as shown in the microphotos above. This means less wear, longer life and a better job.

2 The bodies are precision-made of high quality alloy steel—tough enough to take the strain throughout the extra-long bit life.

3 The bigger Sandvik Coromant bits are all of X-design, which prevents rifling.

No wonder Sandvik Coromant inserts are the most widely used in the world, drilling more than one billion feet every year.

THESE STANDARD SIZES ARE AVAILABLE

	THREAD	DIAMETERS AVAILABLE (IN INCHES)														
BOTTOMING SHOULDER TYPE	⅞" F	1½														
	1" H	1½	1⅝	1¾	1⅞											
	1 3/16" D					2	2⅛	2¼	2⅜	2½	2⅝	3				
	1 11/16" K											3	3½	4	4½	
BOTTOMING TYPE	1¼" Rope				1⅞	2		2¼		2½						
	1½" Rope									2½	2⅝	3	3½	4		
	2" Rope												3½	4	4½	5
	400					2		2¼		2½						
	600									2½	2⅝	3	3½			

Shaded area indicates X-Bits

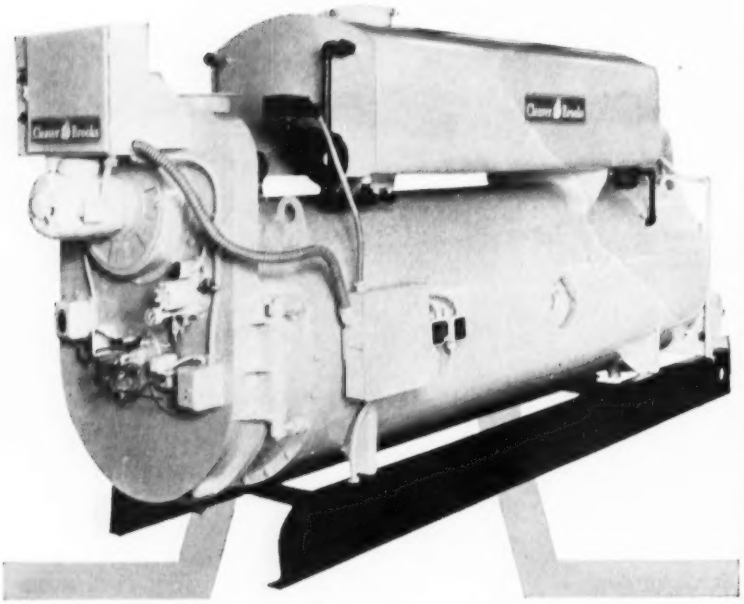
SANDVIK COROMANT bits are supplied through Atlas Copco, the world's largest manufacturer of rock drills, who also supply Sandvik Coromant integral steels—the most widely used in the world—and Sandvik Coromant extension steel equipment.

Write, phone or cable today for further details to any of the addresses below:

Atlas Copco

ATLAS COPCO EASTERN *P.O. Box 2568, Paterson 25, N.J. Phone Armory 4-3310*
ATLAS COPCO PACIFIC *930 Brittan Ave., San Carlos, Calif. Phone Lytell 1-0375*
ATLAS COPCO CANADA *Montreal Airport, Quebec. Phone Melrose 1-5571*
ATLAS COPCO MEXICANA *Apartado Postal 56, Torreón, Coahuila. Phone 39-07* USA-78

NEW Forced circulation Peak-Temp oil heater



Speeds heating of asphalt

Forced circulation of heat transfer oils assures uniform heat distribution . . . improved heat transfer, without "hot spots" or coking. Built-in impeller circulates heat transfer oil at 8 ft. per second, maintains constant oil flow across the furnace and tubes.

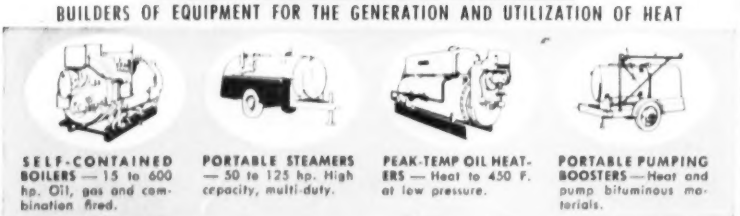
Other design advantages:

- **Heat transfer oil lasts indefinitely because hot oil is in minimum contact with air.**
- **No pressure or water problems. Operates at atmospheric pressure; heats and circulates efficient heat transfer oils at temperatures up to 450° F.**
- **Automatic in operation, fully protected with safety controls; quiet, smokeless.**

Cash in on its versatility. Use the new Peak-Temp oil heater for high temperatures, low pressure heating at asphalt land or marine terminals, pre-stressed concrete plants . . . wherever trouble-free controlled heating or curing of materials is required. For complete details write Cleaver-Brooks Company, Heater Sales, 399 E. Keefe Ave., Milwaukee 12, Wisconsin, Dept. P.

Cleaver Brooks

BUILDERS OF EQUIPMENT FOR THE GENERATION AND UTILIZATION OF HEAT



SELF-CONTAINED BOILERS — 15 to 600 hp. Oil, gas and combination fired.

PORTABLE STEAMERS — 50 to 125 hp. High capacity, multi-duty.

PEAK-TEMP OIL HEATERS — Heat to 450 F. at low pressure.

PORTABLE PUMPING BOOSTERS — Heat and pump bituminous materials.

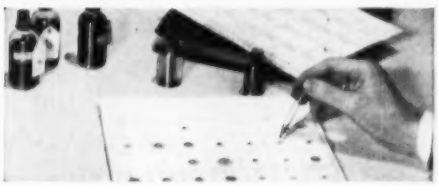
any standard 24-gal metal disposal can. The Shop-Vac can also be used with standard 1½-in. dia vacuum fittings. By changing the hose, the unit can also be used for exhausting, blowing, drying, or spraying.—**Craftools, Inc., 396 Broadway, N. Y. 13, N. Y.**

PORTABLE TESTER—A portable hydraulic circuit tester weighing only 19 lb has been added to the Schroeder line of hydraulic maintenance and testing equipment. The portable tester is designed for use on construction equipment in the field or for checking hydraulic components before equipment leaves the shop. It accurately measures temperature, volume, and pressure, and rapidly pinpoints a faulty hydraulic pump, valve, or circuit. It takes only minutes to connect hoses to the part to be tested and to a low pressure return line. The tester can handle pressures ranging from 300 to 500 psi; flows ranging from zero to 100 gpm; and temperatures from 60 to 220 deg F. Equipment comes in a 7x11x8¾-in. case. — **Schroeder Brothers Corp., McKees Rocks, Pa.**

PTO AVAILABLE — Two new power take-off assemblies for light - duty four - wheel - drive trucks have been introduced by International Harvester. The power take-offs permit the operation of hydraulic pumps, winches, and air compressors, and other types of equipment located to the rear of the truck cab. The one-speed units are mounted on

The Equipment Superintendent of the Ohio Turnpike shows how easily the test is made.

A toll gate on Ohio Turnpike . . . one of America's newest highways.



The simple test reveals many things about a vehicle's engine, and individual cards give a permanent record. The Indicator Fluid is covered by Patent No. 2,770,530.

OHIO TURNPIKE REPORTS:

"Greater oil economy... reduced maintenance costs... thanks to the SHELL ADC Oilprint Analysis."

THE OHIO TURNPIKE operates 225 maintenance and patrol vehicles over its new highway to assure *maximum road safety*. The Shell ADC* Oilprint Analysis was recently adopted so that the oil in every vehicle in the fleet can be constantly checked.

With just two drops of oil, the ADC Oilprint Analysis gives a fast, periodic, on-the-spot check of existing oil conditions. Unnecessary oil changes are eliminated, and in addition, costly engine repairs can be avoided when potential engine trouble is revealed. All this is accomplished *in just a few minutes.*

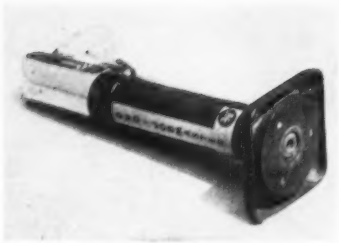
Let a Shell Representative demonstrate the simple application of this program. You'll see for yourself why cost-conscious fleet operators are proving the Shell ADC Oilprint Analysis a valuable preventive maintenance tool. *Trademark

SHELL OIL COMPANY

50 WEST 50th STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIF.

SHELL

the right-hand side of the transmission and controls are mounted inside the cab on the instrument panel. The power take-off assemblies are available for synchromesh or sliding-gear four-speed transmissions on International Harvester A-120, S-120 and R-120 four-wheel-drive trucks.—**Motor Truck Div., International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.**



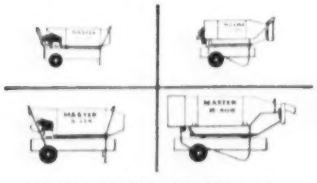
CLEANER JOB—A new guard attachment for Ramset powder-actuated tools enables the operator to do a cleaner and more efficient job of placing fasteners into concrete. The guard, which is 4 in. square and weighs 2 lb, leaves the surface around the fastener relatively unmarred. Because the guard compresses the area around the point of entry, extra penetration is achieved, according to the manufacturer. The spall reducer guard, which replaces the standard guard on Ramset Duo-Jobmaster and Super-Power tools, will sell for $18.—**Ramset Fastening System, Cleveland, O.**

BOSS... GET THIS HEATER!

We'll forget the cold weather and keep your winter profits high

"We won't be slowed down by cold weather. And we'll be a lot more comfortable, too, with a Master heater on the job.

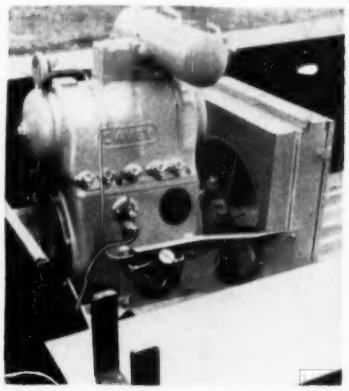
"It puts out a steady stream of warm air wherever you want it. You can plaster, pour concrete, thaw and dry materials, spot heat outside, etc. It's portable, just wheel it around, plug it in and flip the switch. It'll run for 16 hours or more on a tank of kerosene or fuel oil. And for only 30c an hour it puts out enough heat to warm the biggest jobs. It's perfectly safe, too, boss . . . doesn't need a vent. So see your Master distributor, or write for all the facts on the new Master B-250 and other models. You'll see that only Master has all the features you want. No obligation."



100,000; 160,000; 250,000 and 400,000 BTU/hr. units available.

MASTER

MASTER VIBRATOR COMPANY
328 Stanley Ave., Dayton 1, Ohio



TRUCK COMPRESSOR—Davey's new truck-mounted 125-cfm Auto-Air rotary compressor is driven directly from the truck engine through a Davey P-80 heavy-duty power take-off. Because the need for a separate driving engine is eliminated, the 39-in. long compressor fits compactly on any truck body and leaves plenty of room for men or materials. The compressor is the Davey multi-stage, rotary type with a single free-floating rotor. The unit is only 35 in. wide and 41 in. high. Including the take-off, it weighs 915 lb.—**Davey Compressor Co., Kent, O.**

POWER TESTERS—Two new traction-type dynamometers, one with a 0-5,000-lb rating and the other rated at 0-10,000 lb, have

mighty mobile muscles...

CHRYSLER INDUSTRIAL 32

(265 cu. in. displacement) powers the Crane Carrier Corp. carrier. Chrysler Industrial 30 (230 cu. in. displacement) powers the P & H Miti-Mite. Both are in-line 6 Engines used on many makes of equipment in the construction and materials handling field. There are four Chrysler in-line 6s, two V-8s—ranging from 230 to 354 cu. inch displacement.

Hard-hitting, fast-moving Chrysler-powered combination specially designed for a wide variety of "in-between" digging and lifting jobs. *P & H Miti-Mite* converts on the job to crane, shovel, dragline, trench hoe, clamshell, magnet crane. All transmission parts are encased in oil—work on anti-friction bearings. *Crane Carrier Corp.* carrier has rugged H-beam frame with all-welded construction. Both the *Miti-Mite* and the *Carrier* are powered by Chrysler for peak operating efficiency and minimum maintenance.

Chrysler

INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

Write Dept. F-12, Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan, or see your nearest Chrysler Industrial Engine Dealer.

☐ For specific detailed information ☐ For descriptive literature

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(Advertisement)

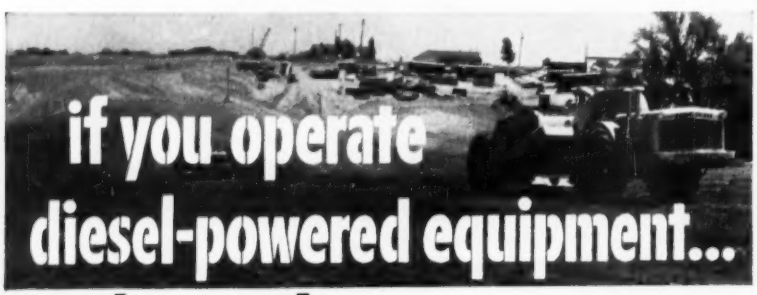
This Jaeger 2PN pumps 10,200 gph through a 2" suction line — all the water a 2" hose can handle. **With 2½" hose, it pumps 14,400 gph.**

Big New Capacities in Jaeger Pumps

Tests of latest model Jaeger "Sure Prime" centrifugals, reproducing actual job conditions, establish *new high capacities and performance never before guaranteed* to users. For example, a light Model 3XP now pumps 19,500 gph at 10′ static suction lift, the Jaeger 6P pump now has an actual performance exceeding 100,000 gph. Base your pump buying on latest information. Sizes 1½" to 10". *See your Jaeger distributor or write for catalog.*

THE JAEGER MACHINE CO., 800 Dublin Avenue, Columbus 16, Ohio

COMPRESSORS • MIXERS • PAVING SPREADERS, FINISHERS



if you operate diesel-powered equipment...

Tachographs help cut down "lugging"

...lengthen engine life...save fuel!

The RPM Tachograph is a recording tachometer which gives your operators a constant guide for proper engine operation, flashes a warning light when predetermined control speed is exceeded, and provides supervisors with an accurate charted record to check operator performance. In addition to engine speed in RPM, the Tachograph chart records time, total engine revolutions, and OFF periods.

A small investment in an RPM Tachograph for every diesel engine you operate can pay big dividends by reducing costly "lugging."

Tachographs are easy to mount and position on the instrument panel, are ruggedly built and tamper-proof. Bulletin SU-107 tells the whole story—mail the coupon today.

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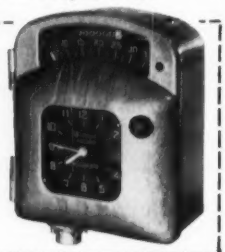
Name and Position_____
Company_____
Address_____
City_____ State_____
We operate_____ Vehicles
(NUMBER)



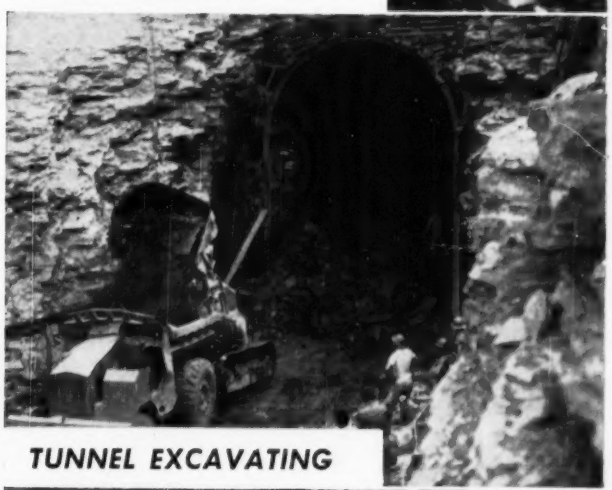
been added to the W. C. Dillon & Co. line. The new dynamometers are designed to measure torque, weight, tension, traction, or compression. Each is individually calibrated and guaranteed to maintain accuracy regardless of temperature extremes and both can take overloads of up to 25%. Both models feature adjustable zero settings, shatterproof glass dials, and are available with either five or 10-in. dia dials. Dynamometers furnished with 5-in. dials weigh 8½ lb and 10-in. models weigh 13 lb.—**W. C. Dillon & Co., Inc., 14620 Keswick St., Van Nuys, Calif.**

SELF-PROPELLED TOWER — The man on the platform of the Travel Tower self-propelled aerial platform can drive the machine forward and reverse, steer it, raise and lower the boom, and also swing the boom through a 360-deg arc. The portable tower is a three-wheeled vehicle with a capacity of 250 lb on the platform, regardless of boom position. A 7½-hp Wisconsin gasoline engine with an electric starter powers a hydraulic pump that elevates the boom to a height of 13 ft. The same engine also drives a ban-type transmission that in turn drives a standard automobile differential. Steering is accomplished by braking the driving wheels. The third wheel is a pivot point that enables the vehicle to turn within its own radius. Auxiliary equipment available includes a 9-cu-ft com-

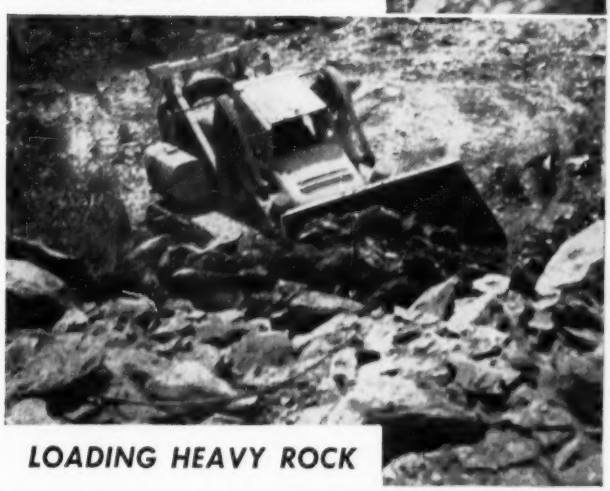
MR. CONTRACTOR

IN SPOTS LIKE THESE YOU NEED AN EIMCO EXCAVATOR

TIGHT QUARTERS



TUNNEL EXCAVATING



LOADING HEAVY ROCK

Illustrated are just three job conditions where 105 Eimco Excavators outperform other earthmovers. It takes care of the tough jobs just as efficiently as it does the easy ones.

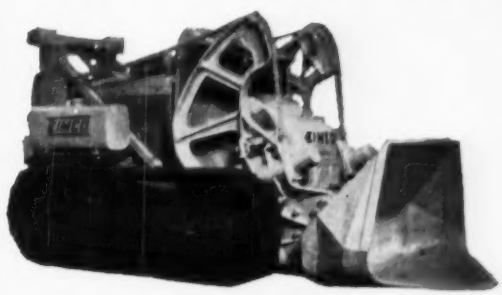
The knowledge and experience gained from building thousands of underground loaders was used to full advantage when we designed and engineered the Eimco Excavator. We gave it the same extra strength for severe service; increased the life and efficiency of working parts thru simplification; gave it I.T.R. (independent track reversal) mobility and "passenger car" power-shift operating ease. Then we put the operator up front where he can see what's going on.

Overhead discharge speeds cycle time; makes it possible to dig, load and dump from one position and do road-work without stopping highway traffic.

With powerful crowding action (39,000 lbs.) the Eimco 105 loads large rocks without secondary blasting usually required when boom shovels or other loaders are on the job.

The Eimco 105 Front-End Loader combines this same high tractor mobility with front end loading versatility for handling scores of different jobs economically.

Write for information on the Eimco 105 Tractor Excavator or Front-End Loader . . ideal highway building tools.



EIMCO 105 EXCAVATOR

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

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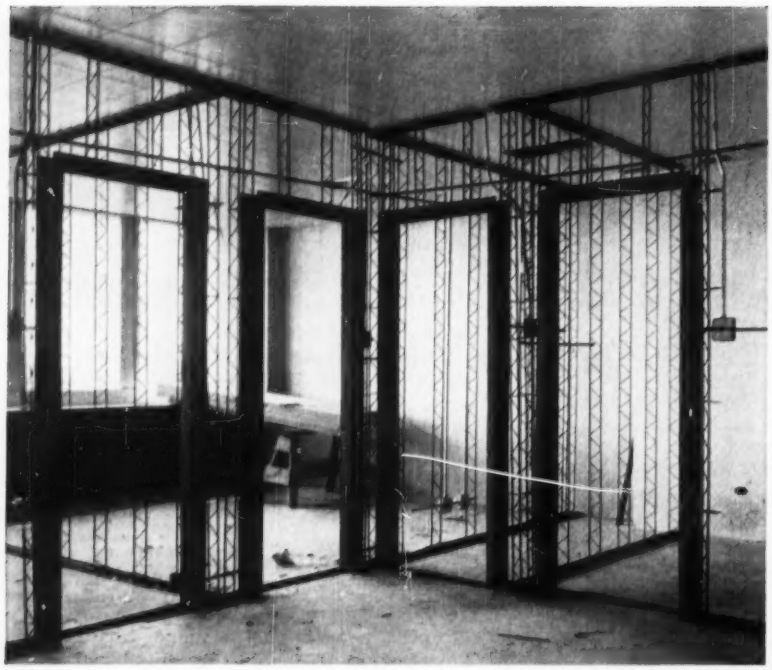
B-295



Floor and ceiling channel anchored quickly, securely, with RAMSET

Save even more with Ramset® products!

For light, medium and heavy-duty fastening, RAMSET SYSTEM has the right tool and fastener for every job! Use SHURI-SET® where RAMSET is not required. Enjoy lowest in-place cost—without drilling, bolting or plugging! Typical are these lathing channels and wallboard installations. Write for free catalog.

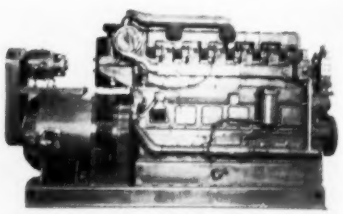
Fastening gypsum board to cement columns using the SHURE-SET hammer-in fastening tool. Fastens into hard materials yet uses no cartridge. SHURE-SET drives like a nail, holds like an anchor!

Lathing channels, being fastened to the concrete floor, drive much easier because the operator is using powder-actuated RAMSET. Notice there are no bulky power lines or heavy equipment.

Ramset Fastening System
WINCHESTER-WESTERN DIVISION
OLIN MATHIESON CHEMICAL CORPORATION
12103-L BEREA ROAD • CLEVELAND 11, OHIO

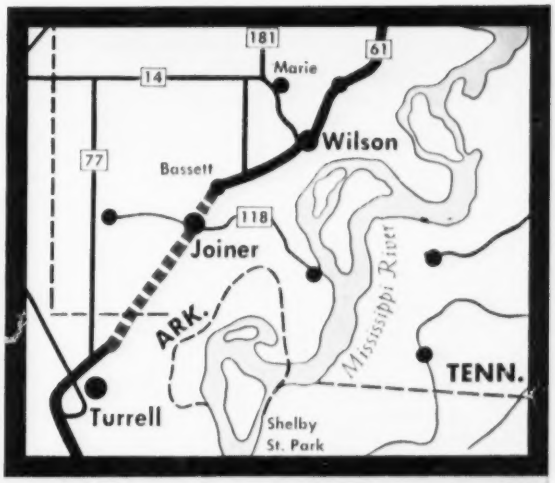
pressor that can be driven from the same engine. — **Pitman Mfg. Co., 300 W. 79th Terrace, Kansas City, Mo.**

MORE POWER—A 154-hp V-8 Chrysler engine and a matching torque converter are now available as optional equipment for Hyster lift trucks in the 15,000 to 20,000-lb class. The engine provides enough power to give speeds up to 20 mph and it permits the truck to climb steeper grades with full loads. The Chrysler engine produces a maximum torque of 237 lb ft at 2400 rpm. Features include overhead valves, forced feed lubrication system, and valve rotators that increase valve life. The engine is rubber mounted to reduce vibration. — **Hyster Co., 1003 Myers St., Danville, Ill.**



SLOW-SPEED POWER — Cummins has introduced a new 450-hp Turbodiesel engine for big pumping units, shovels, and generators to round out its line of slow-speed, heavy-duty L-series engines. The new engine, the RTL-6, has a rating of 450-hp at 1,100 rpm and a displacement of 2,477 cu in. It is a six-cylinder model equipped with a Cummins T-590 turbocharger and Cummins' popular pressure-time fuel

Super-Scooper! One of D. B. Hill's big T-12's in action on the Highway 61 project in Arkansas. Hill uses Esso products exclusively in all of their 100 pieces of equipment.



D. B. Hill, Little Rock, Ark.

helps keep engines clean, avert breakdowns with new ESSOLUBE HD

D. B. Hill, contractor of Little Rock, is currently at work on a 15-mile section of 4-lane road extending from Turrell to Wilson, Arkansas . . . an important link in a main north-south highway.

In both diesel and gasoline engines, Hill lubricates with new Essolube HD. (Except in super-charged diesels where Estor D-3 is used.) Result: *superior internal cleanliness* that promotes better engine efficiency, longer engine life.

Essolube HD contains a new detergent inhibitor with improved low- and high-temperature detergency that reduces sludge deposits and minimizes ring sticking and piston varnish deposits. Further protection is assured by Essolube HD's improved anti-wear properties, oxidation stability and bearing corrosion resistance.

Hill has been using Esso fuels and lubricants *exclusively* for 22 years. Accurate operational records show that in all that time, *there has not been a single failure* due to the fuels or lubricants used!

For better results . . .

Esso

PETROLEUM PRODUCTS

Esso Products and services are available through Esso Standard Oil Company plants and offices in more than 400 cities and towns throughout New England, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, the Carolinas, Tennessee, Arkansas, Louisiana and the District of Columbia.

Rome Disk Plowing Harrows

Rome Master Disk Plowing Harrow takes a deep cut, turning material over so that excess moisture can evaporate.

BUILD *ideal* SUBBASE

for roads, airports and dams

For faster, more efficient pulverizing, aerating, blending and stabilizing of subbase materials put a Rome Disk Plowing Harrow on your job! Here's the weight and design to cut deep — pulverizing action to thoroughly mix the subbase and return material to its original position — free from ruts or windrows — the ruggedness to match the power of the largest crawlers.

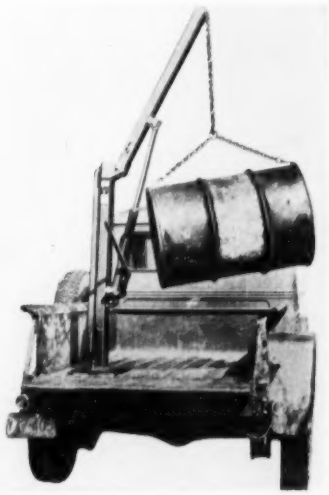
Rome Disk Plowing Harrows are ruggedly-built for heavy-duty construction work. Massive main frames hold gangs level and make them penetrate uniformly. Super-strong bearings — your choice of Timken Roller or White Hard Iron — hold blades rigidly in position, provide easy rolling action. Notched blades are the finest made to withstand the punishment of rocks and stumps. Rome Disk Plowing Harrows are available in a variety of widths, in both offset and Rome Master Tandem. You have your choice of mechanical, hydraulic or cable control angling methods as well as wheel-type offsets in certain sizes.

Get all the facts at your Rome-Caterpillar Dealers.

ROME PLOW COMPANY, Cedartown, Georgia

YOUR **ROME** DEALER IS YOUR **CATERPILLAR** DEALER

system. As an industrial engine the unit measures 99½ in. long, 39 5/16 in. wide, and 58¾ in. high. As a power unit, it measures 136 1/16 long, 54⅝ in. wide, and 86⅛ in. high. The industrial model weighs 7,690 lb and the power plant model weighs 12,100 lb, including standard accessories. **—Cummins Engine Co., Inc., Columbus, Ind.**



EASILY REMOVABLE — The Little Oscar truck crane weighs only 99 lb, but has a 1,000 lb capacity. The crane mounts flush with the deck of the truck in its own mounting well and it can be removed easily so that the entire truck bed can be used for payloads. The crane boom raises 88 in., drops to 23 in., and it is 45 in. long. Overall height is 49 in. An extra length boom that adds 15-in. to the crane's reach is available.**—Star Machine & Tool Co., 201 Southeast 6th St., Minneapolis, Minn.**

WEIGHS LESS — A new small stud welding gun, weighing one-third less than its previous units, has been introduced by the Nel-

GALION GRADE-O-MATIC MOTOR GRADERS

Federal Highway Contracts Need
GRADE-O-MATIC PERFORMANCE

Model T-700
190 h.p.
40,125 lbs.

Model T-600
140 h.p.
30,420 lbs.

Model T-500
125 h.p.
25,765 lbs.

Galion GRADE-O-MATIC Graders are the result of BIG thinking for the BIG jobs ahead! Designed and built to smash the barrier of yesterday's narrow concepts of performance, they help operators achieve amazing results under every working condition.

Automatic torque multiplication as needed . . . power shifting . . . automatic adjustment of engine speed to the load . . . elimination of foot clutch . . . prevention of engine lugging and stalling . . . absorption of shock loads . . . utmost "push-power" at the blade — these features mean moving more material, in quicker cycles, with less operator fatigue, and less downtime for maintenance.

If you are faced with BIG jobs — it will pay you to get the facts on Galion GRADE-O-MATIC Graders. Write for literature today.

ESTABLISHED GALION 1907

MOTOR GRADERS · ROLLERS

TRENCH ROLLERS · PORTABLE ROLLERS · 3-WHEEL ROLLERS · TANDEM ROLLERS · MOTOR GRADERS

THE GALION IRON WORKS & MFG. CO., General and Export Offices, Galion, Ohio, U.S.A.
Cable address: GALIONIRON, Galion, Ohio

One of the Heston fleet—an International L-190 with RD-406 engine, equipped with a 5-speed Fuller 5-A-62 Transmission.

FULLER Transmissions help keep mixers rolling on Heston's roughest jobs

"We are well satisfied with our 5-speed Fuller Transmissions. They see some rough service out on the job sites, and they're plenty rugged. Dependability like that is important to us, because concrete has to be delivered strictly on schedule," says Earl Geiss, Equipment Superintendent of Heston Concrete Corp., Indianapolis.

All 25 Heston trucks are equipped with the original 5-speed 5-A-62 Fuller Transmissions working behind RD-406 engines. Fuller Transmissions "put the power through" to deliver ready-mix concrete to the pour site even in the toughest sticky mud or sand off-road areas.

This satisfying performance can be yours, when you equip your trucks with Fuller Transmissions. From over 110 models available for rubber-tired equipment, you will find a Fuller Transmission designed to do *your* job better at less cost.

FULLER

TRANSMISSIONS

FULLER MANUFACTURING COMPANY, Transmission Division, Kalamazoo, Mich.

Unit Drop Forge Division, Milwaukee 1, Wisconsin • Shuler Axle Company, Louisville, Kentucky (Subsidiary) • Sales & Service, All Products, Western District Branch, Oakland 6, California and Southwest District Office, Tulsa 3, Oklahoma.

COMMENT
from the
BUTLER ENGINEER

Of ducks, women and amazing Ready Mix Plant portability . . .

Memories of the most glorious duck hunting this past Fall insistently weave themselves into my concentration on automation, batchers, portability problems and the like. It was in the Winnipeg area — and it's probably the finest hunting on the North American continent. So if you get a TX4 Plant shaped like a mallard in flight above a golden marsh, you'll know what influenced the design.

It's my observation that men's conversation at work centers around two subjects: Business and women. On a hunting trip there are also two subjects: ducks and women.

Now for the first time you can have a high production Ready Mixed plant with the same portability that the Butler TX4 offers the Roadbuilder. It's called the Butler HP-85. It has the same capacity as a large permanent plant and at the same time such flexibility of movement that you can set it up for each job and eliminate costly mileage for your trucks.

The HP-85 is a completely automatic plant, ruggedly built and will turn out 200-plus yards an hour of beautifully controlled, highest quality concrete. It erects faster than other makes of makeshift portable plants you may have encountered.

In other words, the HP-85 gives you the full capacity of a big plant but with the economies of a small plant where high production is not required.

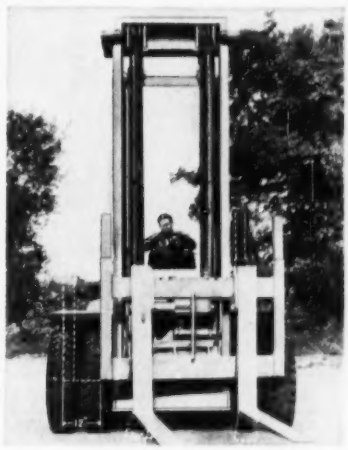
You'll see the HP-85 at the Ready Mix Show in Chicago.

See you there.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

son Stud Welding Div., of Gregory Industries, Inc. Called the Nelson NS-10, the durable red plastic gun weighs only 4 lb and measures only 9 in. long. Despite its compact size the gun will weld all studs up to and including ½-in. sizes, according to the manufacturer. The results of field tests by more than 60 users have convinced Nelson that the NS-10 will soon replace its Model H gun, which was introduced in 1946. **—Nelson Stud Welding Div., Gregory Industries, Inc., Lorain, O.**



ADDS VERSATILITY — Loads can be picked up quicker and deposited easier with the addition of a swing-shift, side-shift attachment developed by Yale for its 15,000 and 20,000-lb gasoline-powered lift trucks. By allowing the fork carriage to be shifted to either side of center and to be rotated on an axis in either direction, the attachment lessens the amount of maneuvering necessary to get the truck in proper position to pick up or deposit a load. Both shifting actions are achieved hydraulically. The attachment can shift the truck forks and load 6 in. to either side of center. The swing shift characteristic permits slewing forks and load in a 10-deg arc in either direction away from the normal straight-forward position. Controlled by separate handles, side-shifting and swing-shifting can be accomplished independently or in combination.—**Yale Materials Handling Div., Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia, Pa.**

continued on next page

HOW TO HANDLE WET JOBS

PLANT McMANUS,
GEORGIA POWER CO.
Brunswick, Ga.
Contractor: Standard Construction Co.

WELLPOINT ENGINEERS LICK MARSH AREA PROBLEM

PICTURE A RIVER nearby . . . a subtropical site so marshy that the ground shook like jelly beneath the machines. To these obstacles, add a water table almost at surface and, farther down, some layers of muck 2 to 3 ft thick.

• Such was the problem pitched at Griffin engineers and here are the answers they returned, with a carefully planned 2-stage wellpoint system. (1) Foundations go in quickly, as deep as 22 ft below water level. (2) Over 22,000 cu yds of earth move out economically, by dragline. (3) Subgrade is so bone-dry that the 1800 timber piles are driven with pile rig working from bottom of excavation.

• When a job calls for "know-how," call for Griffin, dewatering experts for nearly two decades.

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ALL-WELDED BOOM with Gooseneck Design for Deep Digging

FAST on the Job...EASY to Handle!

Added to the UNIT line of proven equipment, is the New UNIT CHALLENGER. Here's a modern ⅜-yard machine that provides a perfect combination of design and construction. Packed with new advanced engineering features: **Self-aligning Hook Shoes . . . Force Feed Lubrication . . . Full Floating Trunnion-Mounted Tapered Drums . . . Torque Converter,** etc., the New UNIT CHALLENGER is the most dependable machine that money can buy.

Bulletin C-800 completely describes and illustrates the New UNIT CHALLENGER.

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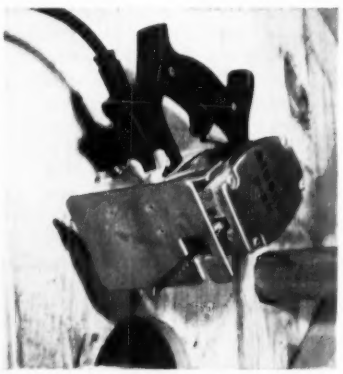
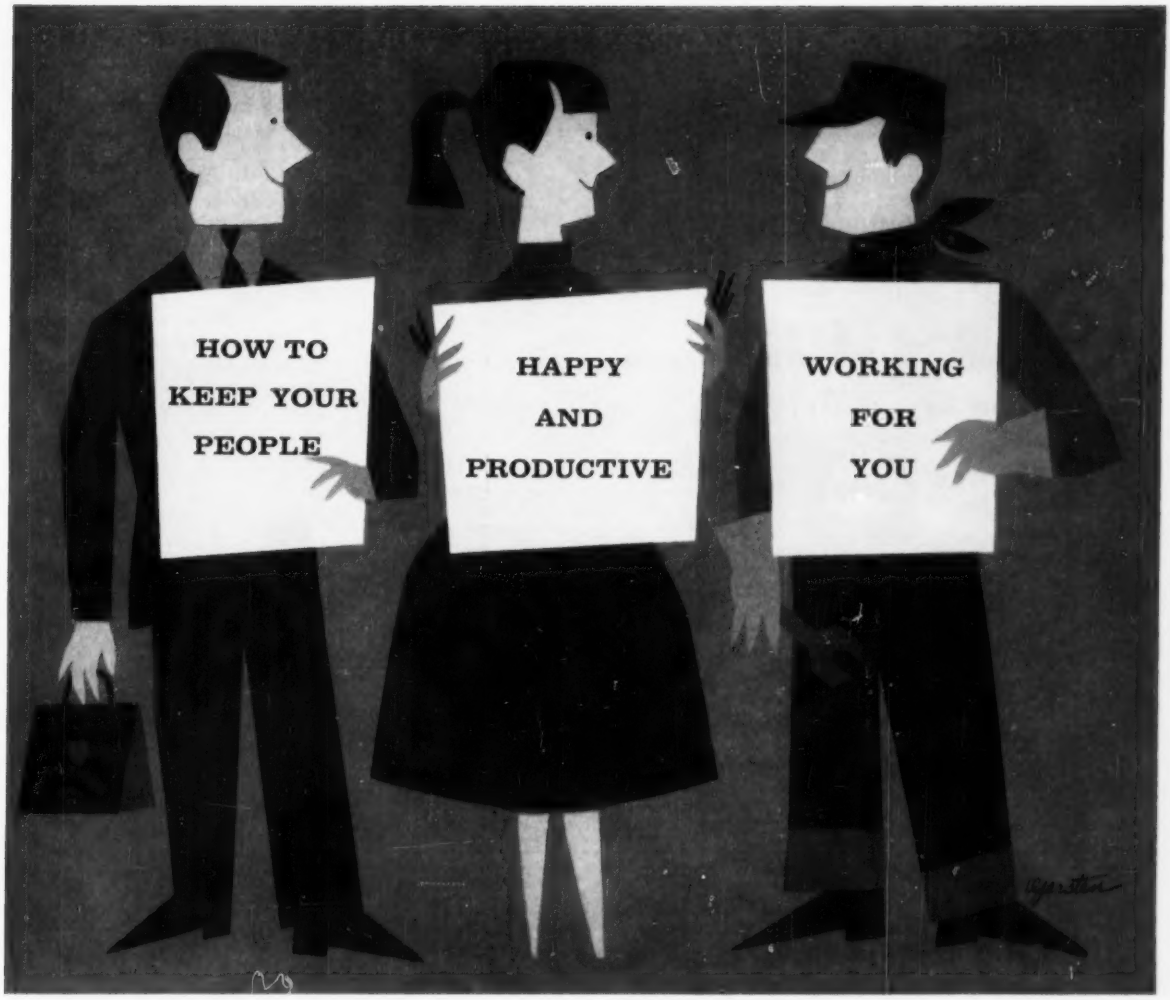
Geared to boost your earnings!

BUILT-IN SEALS—A new method of sealing tapered roller bearings has been developed by the Timken Roller Bearing Co. Called the Duo-Face seal, it combines the features of both an outside diameter seal and the face-type seal—one lip operates in the bearing housing bore and the other lip operates against the smooth, flat face of the bearing cup. The synthetic seal is supplied pressed onto the Timken bearing cone so that handling and assembly problems are eliminated. No special tools are needed and close clearances are not a problem since the seal adds very little width to the bearing. Bore sizes available include .750, .8437, 1, 1.25, 1.375, 1.5, and 2.6875 in.—**Timken Roller Bearing Co., Canton 6, O.**



ENTERS NEW FIELD — A new electric hand saw marks the entry of Henry Disston Div., H. K. Porter Co., Inc., in the power tool field. Called the Disston D-23, the sabre-type saw is expected to sell for $98.50. It features Orbite action that enables it to cut into the



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And now, with Warn Lock-O-matics, you have free-wheeling 2-wheel drive, or normal 4-wheel drive automatically, *as you shift!* When you need traction, you have it! When you shift to 2-wheel drive, you *always* have *free-wheeling* 2-wheel drive—with no drag, front gear whine, shimmy. Warn Lock-O-matics truly make "two vehicles out of 1!"

Ask *your* truck dealer for a free demonstration of Warn Lock-O-matic or Locking Hubs (manual control), or write for literature today! Models for all 4 w.ds. to 1½ tons.

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Beat down-time through timely maintenance . . . know WHEN lubrication, oil change, overhaul, etc., are due. Today's engineers recommend maintenance in terms of operating time instead of distance . . . the Hobbs Engine Hour Meter provides that information. Not a revolution counter, but a true electric timing instrument recording HOURS and MINUTES. Ruggedly built . . . simple to install . . . easy to read. For both gasoline and diesel engines. Approved and recommended by leading manufacturers. **See your factory branch, representative, distributor . . . or WRITE:**

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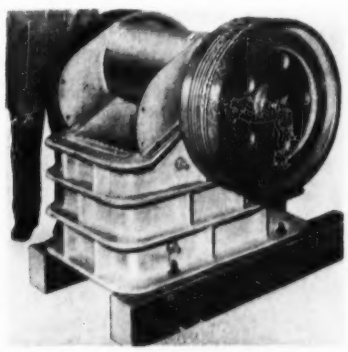
material on the up-stroke and back away from it on the down-stroke, a design which is said to increase cutting speed and provide a cleaner cutting edge. The saw which uses ball and needle bearings, has no friction bearings. A powerful 3-amp motor operates it at 3800 strokes a minute. Other features include a pedestal base that facilitates blade changing, a detachable electric cord and a rip fence at no extra cost.—**H. K. Porter Co., Inc., Henry Disston Div., 610 Tacony, Philadelphia, Pa.**

NEW COATING FORMULA — Formgard, a new coating for concrete forms, penetrates deeply into the pores of wood forms, surrounds the fibres, and drys to a hard finish. Because the chemical ingredients in the coating have the viscosity of water, the coating soaks deeply and dries in a matter of minutes to form a hard, non-brittle coat that is impervious to water, oil, or the chemical action of wet concrete. According to the manufacturer, forms coated with Formgard can be used from 5 to 10 times without recoating. The coating comes in a concentrate form that is mixed with four parts of regular furnace fuel oil. On new or recently cleaned forms it dries in 3 min; on forms that have been coated before it takes a little longer to dry. The product can be applied by hand, mechanical spray, or with a brush or mop. Coating time is lessened because of the low viscosity of Formgard, according to the manufacturer. Tests show that an average of 250 to 275 sq ft of new form can be coated with a gallon of Form-

gard. There is no transference of the coating to dried concrete, it does not give off fumes, and it cannot harm skin or clothing. A 30-gal. drum of the concentrate is priced at $65, with reductions applying to quantity orders. — **Industrial Synthetics Corp., 2,000 W. Walnut St., Chicago, Ill.**

LINE INCREASED—Latest addition to the International Harvester line of utility wheel tractors is the model 330, a 35-hp unit that can handle backhoes, fork lifts, front end loaders, and 32 other types of working attachments. The model 330, which fits between the model 130 and model 350 in the 11-unit International Harvester line, has special mounting pads to help speed equipment changeover. Optional features include torque-amplifier drive, Hydra-Touch hydraulic controls, power steering, and independent power take-off.—**International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.**

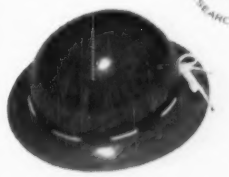


RUGGED CRUSHERS—A new line of H-type jaw crushers in 5x6, 8x10, 10x16, and 10x20-in. sizes has been developed by Denver Equipment Co. All the crushers featured cast steel frames and anti-friction bearings. The roller bearings used in the side frame are contained in a carrier so that the crusher's bumper can be removed without exposing side bearings to dust or dirt. The side bearings on the larger size unit are set in a ball-

BE HARDHEADED ABOUT "HARD HATS"

try before you buy to make sure your men get the very best in head protection

Deciding which type safety hat your men should wear is a most important move. *Both* the safety and comfort of your workers depend on it. So don't just take ours or anyone else's word for what is best for your people . . . *try before you buy*. Ask your nearby Willson Safety Hat Distributor to demonstrate the Willson Super-Tough *phenolic* safety hat *right on your jobs*. See for yourself why this phenolic hat is the strongest type made . . . see how completely it meets all your needs. Scientifically designed to meet all impact specifications with ease, the Willson Super-Tough *phenolic* safety hat withstands 80 foot-pound drop ball tests—40 foot-pounds more than Federal Specifications. And it's most comfortable to wear, too. But *you* be the judge . . . call your Willson distributor, or write us for name, so you can have a thorough on-the-job demonstration.



SIX STYLE CHOICES—The Willson Super-Tough *phenolic* line includes six styles: Three hats and three caps with choice of "Geodetic," Standard, or Lace-in suspension.

SIX COLOR CHOICES—The natural finish of Willson Super-Tough *phenolic* hats and caps is an attractive blend of neutral browns and tans. Also available in spray-coated red, white, yellow, green, or gray for specific job identification. (Other colors on special order.)

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141 Thorn Street, Reading, Pennsylvania

Why use automobile grease in heavy-duty equipment?

Let's not kid ourselves about the difference between the lubrication requirements of automobiles and heavy-duty machinery. D-A Lubricants are compounded specifically for heavy-duty equipment. There is a right one for every application.

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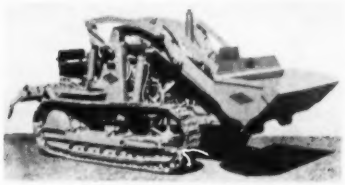
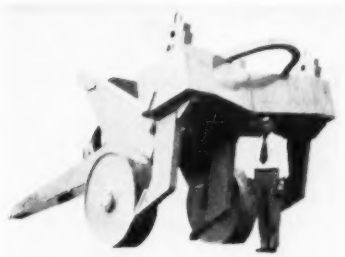
and-sprocket-type mounting so that they are self-aligned. Other features include pressure lubrication systems, manganese steel jaw and cheek plates, and reversible jaw plates. — **Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.**



ATECO LOADER—A new hydraulically operated loader, designed specifically for the John Deere 420C crawler tractor, has been introduced by American Tractor Equipment Corp. The 60 in. bucket has a $^{7}/_{8}$-yd capacity and a maximum lifting height of 9 ft 7 in. It dumps at a 50-deg angle and the tilt-back angle at ground level is 32 deg. Features of the new loader include replaceable bushings at all hinge points, increased track clearance, and a new mounting design that is said to improve stability and to elminate excessive tractor strain and track wear.—**American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland 3, Calif.**



BIG RIPPER—A new 25,000-lb, wheel-type, drawn ripper is the latest addition to the Southwest line, which also includes four other models ranging from 5,000 lb to 13,400 lb. Called the RXH-3, the ripper features shanks of heat-treated steel forgings capable of withstanding severe shock loads. Points are replaceable on the shanks and are hard-faced to resist wear. Wheels are drum-type, mounted on Timken bearings. All rotated parts are designed for ease of lubrication. Ripping depth is controlled

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with powerful hydraulic Porto-Power

• There's a fast, low-cost answer to scores of on-the-job time-consuming construction problems. Use tons of hydraulic power to do the work! Apply force quickly . . . and exactly where needed with remotely controlled all-directional Blackhawk "Porto-Power" hydraulic jacks!

The men above, for example, do it the easy way — leveling up the cantilever section of a lift slab with "Porto-Power" ram and gauge-equipped hydraulic hand pump.

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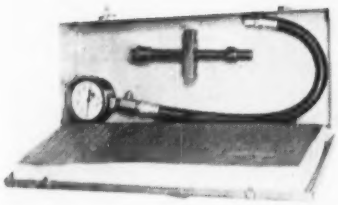
BLACKHAWK BLACKHAWK MFG. CO., MILWAUKEE 46, WISCONSIN

through the cable. The RXH-3 ripper has an overall length of 25 ft, a width of 10 2/3 ft and a height of 8 2/3 ft. The ripper can penetrate to three depths—36, 42, and 48 in. A special center shank, available as an accessory, can be furnished to give maximum of 60 in. penetration. — **Southwest Welding & Manufacturing Co., 320 W. Mission Rd., Alhambra, Cal.**



CHECKS DIESELS—A new cylinder compression gage for diagnosing diesel engine trouble is now available from Kent-Moore Organization, Inc. The gage comes with an adapter that is installed in place of an injector nozzle in one of the cylinders and the engine is operated on the other cylinders. The gage registers the pressure—from 0 to 1,000 psi—in the non-firing cylinder. The gage needle records the maximum indicated pressure until released by the thumb-release vent valve. The gage is offered in a carrying box made of durable metal and lined with plastic sponge that compresses when the cover is closed to protect the gage against damage. Adapters are available for all popular model diesel engines.—**Kent-Moore Organization, Inc., 28,635 Mound Rd., Warren, Mich.**

PRIME-MOVER M15A FOR BUILDING CONSTRUCTION Places 12 to 17 cu. yds. of concrete per hour on school, hospital and commercial projects — *without* extensive preparations for its use. Runs on same type of ramps, hoists and runways as hand carts. Available with flatbed, or 10 cu. ft. bucket.

M15A ▲
PRIME-MOVER
▼ M30

FOR HIGH VOLUME, LOW COST PLACING OF CONCRETE AND OTHER BULK MATERIALS— USE PRIME-MOVER POWER!

PRIME-MOVER M30 FOR ENGINEERED CONSTRUCTION

Hauls ⅔ yard or 1-½ tons. Unloads transit mixers fast. Spots concrete right where it's needed on plant, warehouse, pier and bridge construction. Hydraulic Torque Converter Drive frees the operator from shifting, clutching and wasted effort. Rugged, dependable. Bucket and flat bed.

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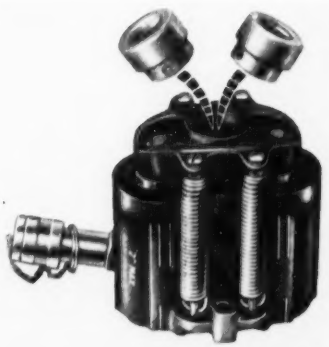
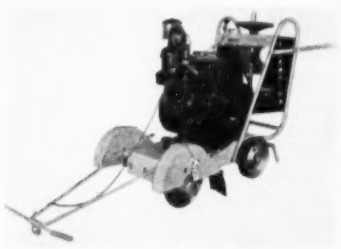


MORE VERSATILE — Changing from a tapped head to a plain hole head on OTC Power-Twin rams has been simplified. Instead of changing the entire ram head to obtain either a tapped or plain hole, the user can now use inserts that permit a changeover more easily and quickly than before. Inserts are available for all Power-Twin models including 17½, 30, 50, and 100-ton units. OTC distributors will adapt older models so that the inserts can be used.—**Owatonna Tool Co., 300 N. Cedar St., Owatonna, Minn.**



SELF-PROPELLED SAW — To meet a growing demand by contractors for a concrete saw small enough to be easily maneuverable, yet powerful enough to do heavy production work, Champion Mfg. Co. has developed a

WIRE ROPE AT WORK

To help satisfy California's growing need for home and industrial gas, a new suspension bridge now carries a 34-in. pipe line across the Colorado River and into the Golden State. The scene shown above was photographed while construction work was still under way. When in full operation, the line will handle an estimated 150,000,000 cu ft of natural gas per day.

The bridge has its easterly tower and anchorage in Topock, Arizona. From tower to tower the span is approximately 900 ft. Among the primary components of the bridge are the 2¼-in. main suspension cables, which were furnished by Bethlehem—prestressed and cut to exact lengths. All in all, more than 17 tons of Bethlehem bridge strand is used in main, suspender, wind, and other types of cables. This application of steel strand, a cousin of Bethlehem wire rope, provides exceptionally strong support for the 70 tons of pipe spanning the river.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:
CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING

New way to pinpoint a payload

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Newpedal-operated inching control permits positioning of the load with pinpoint accuracy in either forward or reverse range.

Now Allison TORQMATIC DRIVE brings new power, ease and precision to big fork-lift trucks

Now, for the first time, here is a full power-shift transmission for giant fork-lift trucks.

It's the new TORQMATIC CRT-3331-3–specially designed to handle maximum engine torque in vehicles with limited chassis space, such as fork-lifts, underground ore carriers and other material handlers.

Its converter multiplies engine torque up to 350%–delivers this power with silken smoothness–eliminates load-tipping jolts.

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The exclusive oil-cushioned inching control permits enviable precision and accuracy–saves you time, money and equipment.

For truly modern, materials handling equipment, it will pay you to get the Allison TORQMATIC story.

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Allison TORQMATIC **TORQMATIC DRIVES**

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Pow-R-Ditcher

Model 524T Pow-R-Ditcher

The largest of the Pow-R-Ditchers, the powerful 524T digs an 8" to 24" ditch and is especially designed for wide foundation footings, gas, water and sewage lines. Hydraulically controlled steering, 5 speed truck transmission and 2-way dirt conveyor are just a few of its features. A self-propelled unit that digs for LESS because it COSTS SO MUCH LESS!

Model 4T Pow-R-Ditcher

A smaller ditcher (6"-14" ditch) for the light construction field, the 4T Pow-R-Ditcher is easily transported in a pick-up truck. Excellent for laying gas pipe, water and cable lines and for digging home foundation footings. Same size moving parts as the 524T. It is fast, rugged and low priced.

Write For Literature and Low Prices on the Complete Vermeer Pow-R-Ditcher Line

Smaller model also available. Get all the facts now on the Pow-R-Ditcher best suited for your needs. See your Vermeer dealer or write.

VERMEER MANUFACTURING CO.

1435 W. WASHINGTON • PELLA, IOWA

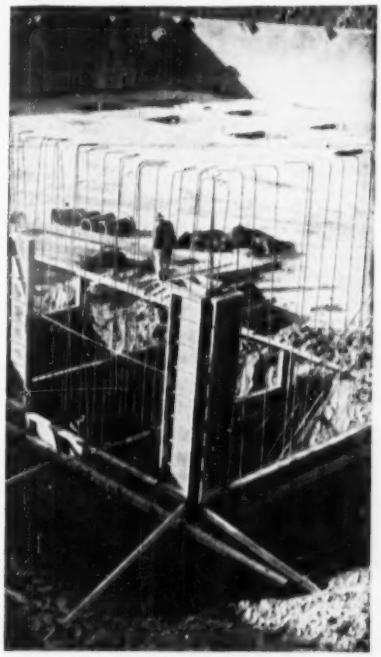
EQUIPMENT NEWS . . . continued

self-propelled model of its small CS-500 concrete saw. The unit makes use of a Wisconsin TF engine rated at 18 hp. According to the manufacturer, the small saw can now handle contraction joints, as well as trenching and patching jobs.—**Champion Mfg. Co., 2028 Washington Ave., St. Louis 3, Mo.**

LOW-COST CUTTER—A low-cost power drive for hand pipe tools has been introduced by the Oster Mfg. Co. Called the Oster 100, it has a 2-in. standard pipe range, but can handle diameters up to 12 in. when a special drive unit and geared tools are used. The machine, which weighs only 77 lb, comes with a hinged folding stand but it can also be bolted directly to a work bench or clamped on a truck or bench. A ½-hp variable-speed motor with direct gear drive powers the unit at speeds of from 22 to 38 rpm. The machine is 12⅜ in. high, 13 15/16 in. wide, and 14 11/16 in. long.—**Oster Mfg. Co., E. 289th St., Wickliffe, O.**

UTILITY LOADER—Johnson's 1,700-lb capacity loader for small and medium-sized utility tractors features a universal frame that will also accommodate a fork lift, 6-ft boom, 6-ft straight doz-

Symons FIELD REPORT...



Contractor Saves 40% with Symons Forms . . .

7,500 square feet of Symons Standard Forms were used in the new 2 million gallon capacity pumping station at Melrose Park, Illinois. 2,000 cubic yards of concrete were used on the job and the concrete contractor, Louis Macro Company, Melrose Park, reported a 40 per cent saving through the use of Symons Forms. Walls for the job were completed in three pours.

Symons engineering service can help you realize substantial savings in forming. With your plans, our engineers will prepare a complete form layout, bill of materials, and make recommendations for the most efficient and cost saving method of forming.

Our field service representatives are sales engineers, ready and able to advise you on form erection, pouring and stripping methods that will help you save time, labor and materials. You can call on them to assist you on any forming problems.

Symons Forms can be rented with purchase option. Symons Clamp & Mfg. Co., 4255 Diversey Avenue, Dept M-7, Chicago 39, Illinois.

Sam Carniglia Company, Melrose Park, Illinois
General Contractor.

Catalogs and Added Information on FORMS—CLAMPS—SHORES Sent on Request

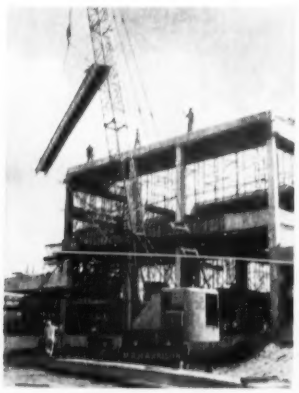
CAST- *prestressed* CONCRETE MEMBERS *Accurately, Economically* with-

FORM-CRETE

STEEL FORMS

DESIGNED FOR USE on a flat casting bed, Form-Crete all steel forms are engineered to produce the highest quality smooth finish, prestressed and precast products. Carefully engineered product release angles permit easy stripping of cast product and heavy-gauge steel construction provides an indefinite form life. What's more, many Form-Crete forms can be quickly adapted to produce a variety of products keeping form investment costs low, output high.

Get into the profitable prestressed concrete business now with accurate, economical Form-Crete steel casting forms. A newly revised catalog is yours for the asking. Write for your copy today.



Widely recommended and used throughout the building industry, prestressed concrete helps speed construction, provides unusual design features and materially reduces building costs.

Low initial cost, immediate availability and minimum maintenance give impetus to the use of prestressed pilings and beams in the nation's bridge building program.

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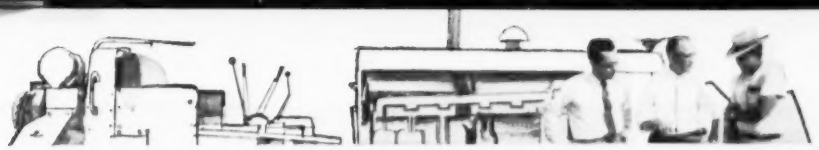
er, 4-ft digging bucket, and other attachments. The weight of the loader is only 935 lb less attachments. Breakaway capacity is 4,000 lb, and the speed of lift to its full 56-in. height is only 5 sec. The loader bucket has a 8-ft clearance under the bucket when dumped at a 45 deg angle. Other features include a low silhouette that provides unobstructed vision, double acting hydraulic cylinders, a float position on the control valve, and a rugged box frame. A second oil reservoir in the frame can be connected to handle additional hydraulic equipment when needed.—**Johnson Hydraulic Equipment Co., 515 W. 78th St., Minneapolis 23, Minn.**

HANDLES 20% SOLIDS—Sumo's new electrical submersible drainer pump is designed to handle water containing up to 20% solids. The pump has back blades that keep foreign matter from the motor seal and a ⅜-in. mesh stainless steel screen that protects the pump inlet. The pump has a capacity of 460 gpm at 15-ft head, and 145 gpm at a 70-ft head. It can operate either partly or completely submerged. A built-in thermostatic cut-off protects the motor against damage by overheating, obstructions, or overloading; and a built-in automatic reset starts the pump again when obstructions are removed or overloading is relieved. The



Builds seven-billion-gallon reservoir so nobody goes thirsty in Indianapolis

H. D. Tousley Company, Builder of Morse Reservoir, uses one source for petroleum products—STANDARD OIL

Two miles northwest of Noblesville, Indiana, H. D. Tousley Company built Morse Reservoir for the Indianapolis Water Company, one of the largest privately owned water utilities in the country. The reservoir impounds Cicero Creek to create a seven-billion-gallon reserve water supply for the city of Indianapolis. It was a $6.5 million job. The contractor did it with one supplier of petroleum products—Standard Oil. This is one of the reasons Tousley uses Standard Oil products:

Standard Oil works direct with Tousley. On this job Standard Oil Company worked direct with the contractor. A Standard Oil bulk station only a few miles distant made deliveries to this job whenever needed, day or night. One of Standard Oil's 23 Division Offices is located in Indianapolis to give additional help. Tousley maintenance men thus had no worries about service on diesel fuel, gasoline, motor oil, grease.

Lubrication technical service. Out of the Standard Oil Division Office, only 23 miles from the job, the Tousley Company had the services of experienced lubrication specialists. On this project, Standard's chief automotive engineer and a lube specialist worked with job and equipment superintendents. They made a lubrication survey, recommended STANOLUBE HD-M Motor Oil and AMOCO* Lithium Multi-Purpose Grease for all equipment. They cut down the number of products Tousley needed to inventory, eliminated chance of application errors and saved the contractor money.

Get this kind of service from Standard Oil anywhere in the 15 Midwest and Rocky Mountain states. Call your nearby Standard Oil office. Or Write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

Morse Reservoir built by H. D. Tousley Company to insure Indianapolis a reserve supply of water. All equipment on this $6.5 million construction project used Standard Oil products.

F. E. Hull, Standard Oil chief automotive engineer (left), and M. B. Shookman, Standard automotive lubrication specialist (right), go over lubrication of Caterpillar drive with Tousley Company maintenance superintendent, Jim Smith. Experienced Standard Oil men such as these give lubrication technical service to contractors. Forrest Hull has been doing this work for 13 years; Miles Shookman, for five years. Both men have completed the Standard Oil Sales Engineering School.

STANDARD

STANDARD OIL COMPANY
(Indiana)

*Trade Mark AMOCO registered U. S. Patent Office by The American Oil Company and used by Standard Oil Company under license.

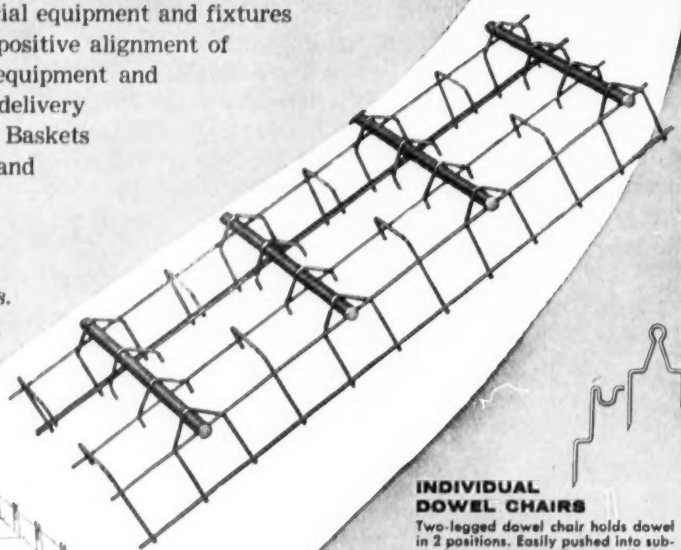
UNIVERSAL PRODUCTS
for highway construction

DOWEL BASKET ASSEMBLIES

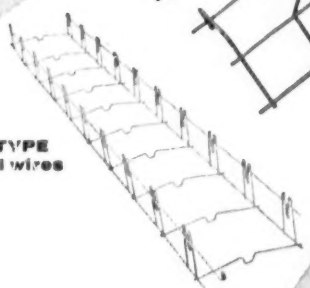
Universal Dowel Basket Assemblies are designed and fabricated to specifications. Special equipment and fixtures guarantee accurate spacing and positive alignment of dowels. High speed production equipment and modern facilities insure prompt delivery of your requirements. Universal Baskets are approved by Federal, State and private authorities for highway and airport construction.

Let us quote on your requirements. Write for complete details today.

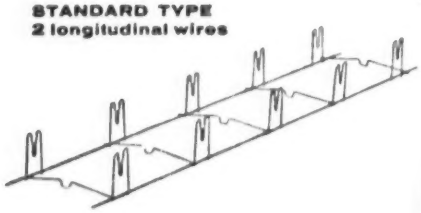
HEAVY DUTY TYPE
Maximum strength and support



STANDARD TYPE
4 longitudinal wires



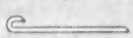
STANDARD TYPE
2 longitudinal wires



INDIVIDUAL DOWEL CHAIRS

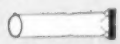
Two-legged dowel chair holds dowel in 2 positions. Easily pushed into sub-grade — won't turn after installation. Wide range of heights.

Single Leg Dowel Chair permits quick snap-in of Dowel. Sizes to support Dowel from 3" to 6" above sub-grade.



STAKE PINS

Keep Dowel Bar Assemblies in place during the pour. Lengths from 4" to 15" in ¼" increments.

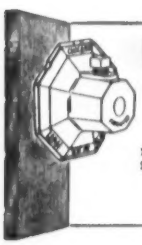


DOWEL SLEEVES

Metal Dowel Sleeves for covering ¾" Dowel Bars; overall length covers 2½" or 3" Dowel. Special sizes and lengths available.

HOOK BOLT ASSEMBLY

For providing required tieing element along longitudinal joint. Eliminates necessity of bending tie bars or drilling road forms.



UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER • CHICAGO 51, ILLINOIS

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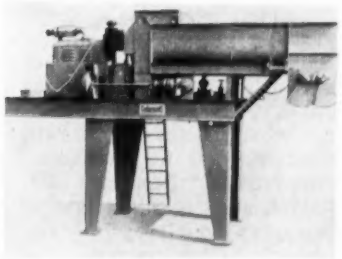
UNIVERSAL FORM CLAMP CO. OF CANADA, LTD. • 226 Norseman Street • Toronto, Ontario

DISTRIBUTORS IN PRINCIPAL CITIES

submersible motor operates in a factory-sealed oil bath, and it is cooled by discharge water. The three-phase motor is rated at 7½ hp. The pump, which weighs 238 lb, can be adapted for either portable or permanent service.—**Sumo Pumps, Inc., 23 Brown House Rd., Stamford, Conn.**

BIGGER GUN—A larger model of its concrete gunning machine, the 1600-H Nucretor, has been placed in production by Air Placement Equipment Co. The gun is designed for jobs that require high volume production, but it can be regulated for any production rate from 2 to 9 yd per hr. Depending on the rate of delivery desired, the Nucretor can be used with 250, 315, 365, 500 or 600-cfm compressors. The unit weighs approximately 700 lb.—**Air Placement Equipment Co., 1009 W. 24th St., Kansas City, Mo.**



STABILIZER—A new stabilized base mixer that will provide from 300 to 500 tons per hr of aggregate thoroughly mixed with water—and with calcium chloride if desired—has been developed by Iowa Mfg. Co. The new unit consists of a twin-shaft mixer, discharge hopper, self-priming pump, and meter—all mounted on

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on repairs and construction
Portable Water Cooled Gas Drive
Self-Propelled U-Drive-It Gas Drive Welder
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No delays—no waiting for outside help—no expensive replacement parts. This new Hobart portable welder lets you weld ANYWHERE, ANY TIME—independent of electric power lines. You'll find Hobart welders offer top quality construction, with many features "built-in" at the factory—at no extra cost. You can get all the details quickly and without cost or obligation by sending the coupon to HOBART BROTHERS COMPANY, BOX 6127, TROY, OHIO. Phone FE 2-1223.
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WRIGHT
Type "R" Pull-A-Ways
WEIGH LESS THAN 9 POUNDS
Write for Bulletin DH-521A
5-foot double strand, 3000-lb. pull
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Sturdy • Light • Safe • Economical
Here are some of the fine features of WRIGHT Type "R" Pull-A-Ways:
Drop forged ductile aluminum alloy frame • Wire hoist cable of maximum strength and flexibility • 8" minimum handle movement—for close hook-ups • 2" drum hub for cable • No oiling needed • Drop forged steel hooks • Removable, reversible "Safety Handle" that bends before any part of hoist is overloaded • Automatic load lowering, with positive control for safety.
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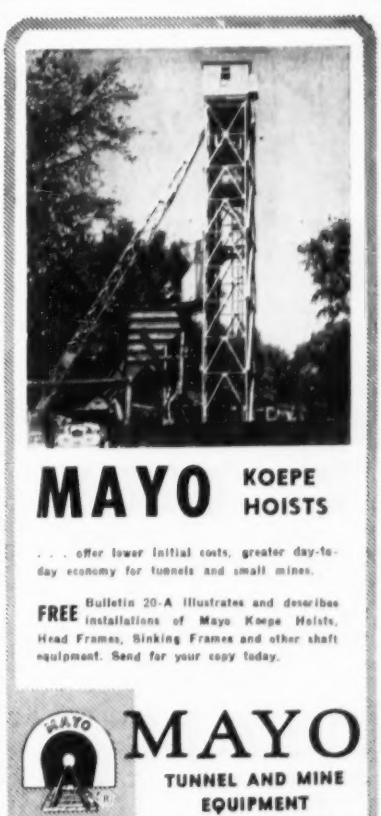
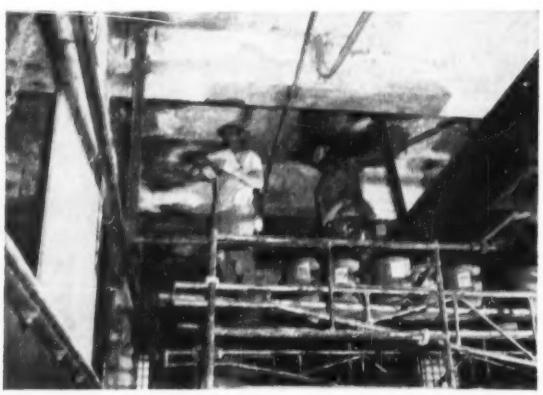

MAYO KOEPE HOISTS
. . . offer lower initial costs, greater day-to-day economy for tunnels and small mines.
FREE Bulletin 20-A illustrates and describes installations of Mayo Koepe Hoists, Head Frames, Sinking Frames and other shaft equipment. Send for your copy today.
MAYO
TUNNEL AND MINE EQUIPMENT
LANCASTER, PENNA.

How THORITE and THOROSEAL made this underground structure sound again!

Workmen prepare old surface for patching with THORITE.

Water has entered the concrete and caused corrosion of reinforcing rods, blistering the concrete off surface and causing structural weakness throughout building.



Reinforcing was cleaned, all corrosion was removed and brush coat of THORITE applied over entire patching area, then filled in with trowel coats of THORITE, even with surrounding surfaces.

THORITE Patching Mortar sets in 20 to 30 minutes and can be coated with THOROSEAL while hardening.

"How to do it" GET OUR 16 PAGE BROCHURE

STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNA. CENTERVILLE, IND.

a steel frame that is supported by steel legs that bring it to truck-loading height. Front and rear running gear for between-job moves and a calcium chloride feeder with a metering gate, screw conveyor, and drives, are also available as optional equipment. In operation, aggregate is fed into one end of the mixer by a conveyor. As it enters the mixer the proper amount of water is sprayed on it through nozzles. The water is controlled by a 3-in. self-priming centrifugal pump and water meter. The 60 paddles on the two shafts mix the material to the correct moisture density and move it to the 21-yd discharge hopper, which has clam-type gates for dumping directly into trucks. The mixer offers 27 cu ft below the center line of the shafts and 70 cu ft at water level. The 60 alloy-iron paddle tips are adjustable to control the mix, and can be reversed end to end.—**Iowa Mfg. Co., Cedar Rapids, Iowa.**

POWERFUL ROTARY — Joy's new model 125 rotary blast hole drilling rig is equipped with Duo-Flow, Joy's efficient feed mechanism that consists of a combination mechanical and high torque reversible hydraulic motor and air compressor. Other features of the rig include an oil bath-type rotary table, double-drum drawworks that are mounted on a common shaft, hydraulically raised and lowered mast, and controls that enable the operator to run the rig without moving from one position. The rig is either truck or trailer mounted, and power is provided by either a truck engine or an auxiliary power unit.—**Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa.**

"I get 25% more production with a torque converter!"

says Joe N. Flores, Flores and Perry

Working on an 8-mile grade-raising job on Central Valley Highway south of Hanford, California, a torque converter equipped International TD-24 is push-loading two "75" Payscrapers to the tune of 20 cu. yd. heap loads in only 42 seconds!

Production? You bet! And here's the reason for it:

"Our torque converter equipped TD-24 Tractor gives 20 to 25 per cent more production than comparable mechanical drive units!" says Joe N. Flores, of Flores and Perry, the contracting firm operating the TD-24. "That's not all, either," Mr. Flores goes on. "We estimate the torque converter drive improves service life by something like 25 per cent!"

Here's how the torque converter does it: It multiplies engine torque up to 6:1 when required. It permits the engine to deliver constant high horsepower output. It automatically matches power to load demands, with gear-shifting minimized or eliminated, for increased operator efficiency. Heavy load pick-up is smooth and even, without clutch slippage. Shock loads and vibrations are cushioned out through the converter's fluid connection, for long tractor life and minimum maintenance. An infinite variety of torque ratios is available to work with, permitting smooth, safe, accurate control of loads.

Leading tractor manufacturers today offer torque converter drives as standard or optional in various models . . . and standardize on Twin Disc torque converter components for maximum performance and proven dependability.

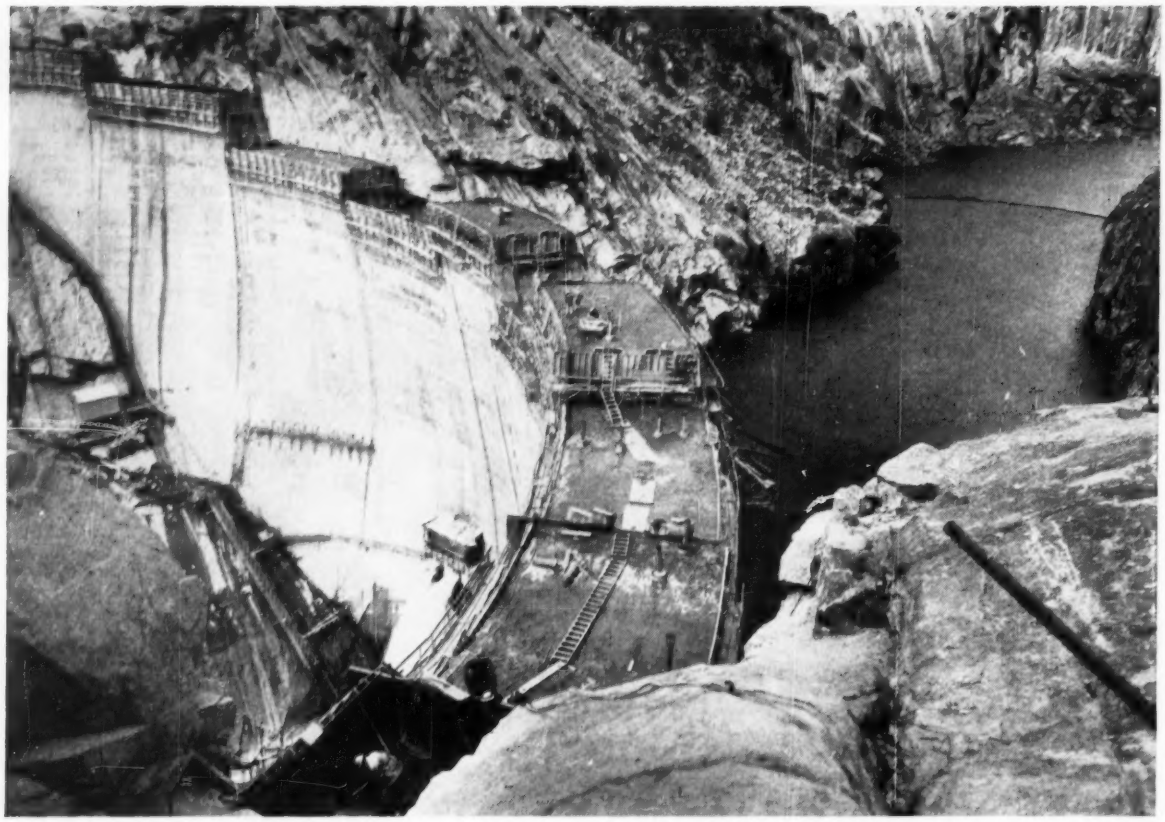
See your dealer now for complete information on torque converter equipped machines. Try one on your next contract and you'll agree with what leading contractors everywhere are saying: The torque converter drive is the wisest, most profitable investment you can make in a heavy-duty machine!

Twin Disc Clutch Company, Racine, Wisconsin; Hydraulic Division, Rockford, Illinois.

TWIN DISC

TWIN DISC

Torque Converters



DONNELLS DAM, located 40 miles above Sonora, California, rises 484 ft. from its granite bedrock foundation. Blaw-Knox Steel Forms were used extensively in forming the 317 ft. high concrete arch which tapers in thickness from 41 ft. at its base to 10 ft. at its crest.

Special Blaw-Knox Forms shaped for Arch Dam Contours

. . . can be re-used again on flat surfaces

Blaw-Knox forms engineers designed a special jack screw to curve, twist and warp steel forms to fit both the concave and convex contours of Donnells Arch Dam in California. And, these same forms can be re-used again for flat surface forming.

Other special features allowed the same set of forms to be used over and over again on all parts of the dam. This meant big savings in on-the-job construction and engineering costs. Setting and stripping of the forms was made faster on the adjusting screw system.

Donnells is part of the huge Tri-Dam project which will supply water and electric power to a large part of Northern California. The project is a joint effort of Tri-Dam Constructors headed by Morrison-Knudsen Company, Inc., and includes Macco Corporation, Peter Kiewit Sons' Company and Stolte, Incorporated.

If you are engaged in heavy concrete construction, such as Dams, Tunnels or Bridges, call in the Blaw-Knox Forms Engineers early in your planning. You will get the benefit of their unmatched experience in this field to help you form faster, cut labor and material costs.

BLAW-KNOX

BLAW-KNOX COMPANY

Blaw-Knox Equipment Division

Steel Forms Department, Pittsburgh 38, Pa. • Phone: STerling 1-2700

New Publications

These catalogs and bulletins from manufacturers contain useful information about construction equipment and materials. To obtain a copy, write directly to the manufacturer at the address given.

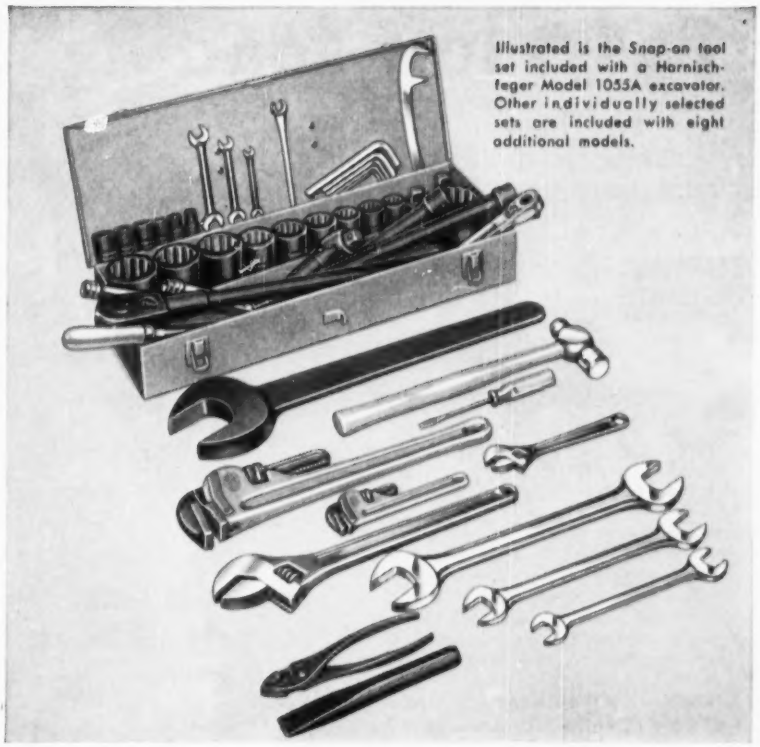
WELDING GUIDE—"How to Get Better Welds" is a 60-p pocket size booklet containing useful arc welding information. The first part of the booklet covers general data such as welding procedures, types of metal, choice of electrodes, welding symbols, and causes and cures of welding troubles. The last part of the booklet gives details of Hobart equipment.—**Booklet EW-201, Hobart Bros. Co., Troy, Ohio.**

ASPHALT PLANTS—A new 15-p bulletin describes the Mobile 60 and Mobile 40 wheel mounted batch type asphalt plants. All units of these plants are self-contained, assembled to a considerable degree, and wheel mounted. This enables contractors to relocate the plants in a matter of hours.—**Bulletin M-57, Hetherington & Berner Inc., 701 Kentucky Ave., Indianapolis, Ind.**

AIR EQUIPMENT—An 8-p bulletin describes Le Roi's construction industry products. It includes photographs and specifications of compressors, the Tractair, Newmatic air tools, and CRD one-use drill bits.—**Bulletin CG-15, Sales Promotion Department, Le Roi Division, Westinghouse Air Brake Co., Milwaukee, Wis.**

CAT ATTACHMENTS—A summary of the attachments available for Caterpillar crawlers, wheel units, Traxcavators, and motor graders is contained in an 8-p booklet issued by the Caterpillar Co. The booklet also contains ideas for using the attachments to increase the output of major equipment units.—**Form DE754, Advertising Division, Caterpillar Tractor Co., Peoria, Ill.**

NEW COMPACTOR — Details of a new compacting machine are contained in a 24-p brochure. The device is a self-propelled machine that mounts both pneumatic and steel rolls. The rolls can be used individually or in combination to



Illustrated is the *Snap-on* tool set included with a Harnischfeger Model 1055A excavator. Other individually selected sets are included with eight additional models.

Snap-on

lives with an excavator

HARNISCHFEGER

provides a hand-picked tool kit

Each *Snap-on* tool kit Harnischfeger Corporation includes with a new excavator is specifically designed for that particular model.

These tool sets are the result of an analysis suggested by R. J. Ripple, *Snap-on* sales engineer. After preliminary discussions, Ripple brought in a wide selection of *Snap-on* open-end wrenches, sockets, Torqometers and other tools. Then, working from the ground up during assembly of an excavator, this *Snap-on* specialist, together with Harnischfeger erection and engineering people, selected by actual trial the proper tools to go with the machine.

The complete survey involved at least eight different models and extended over a period of many weeks.

These tool sets make maintenance jobs faster, easier, and better. In addition, factory engineers now carry only a minimum of extra tools for erecting excavators in the field.

GOT A TOOL PROBLEM?
CALL THE *SNAP-ON* REPRESENTATIVE

Tool kits for original equipment, tools for production and maintenance, tools for field service work—whatever the problem, talk it over with your *Snap-on* man. He is a specialist who devotes all of his time to industrial application of nationally accepted *Snap-on* tools. Branch offices and warehouses are located in 54 cities throughout the U.S. and Canada. Consult your phone directory or write us.

SNAP-ON TOOLS CORPORATION

8042-L 28th Ave., Kenosha, Wis.

*Snap-on is the trademark of Snap-on Tools Corp.

easy, low loading

for low traction equipment

on the MILLER Model BT-10 Tandem!

A ground hugging platform . . . made possible by suspending it between single wheels mounted in tandem . . . allows an exceptionally low angle when tilted . . . provides such easy, "low" loading, that even rollers with their limited traction can be loaded by ONE man in less than two minutes. This faster, easier loading, plus easier backing and close quarter maneuverability . . . saves the bother and expense of larger, more cumbersome trailers . . . so often impractical to use for "last jump" job to job hauling.

For handling dozers, loaders, backhoes, rollers and other construction equipment you can't beat a MILLER Tilt-Top — see them at your distributor today!

Capacity 10 Ton $1,630.00*
*F.O.B. Milwaukee
Complete with platform and tires.
Any optional equipment extra.
*Plus 10% Federal Tax

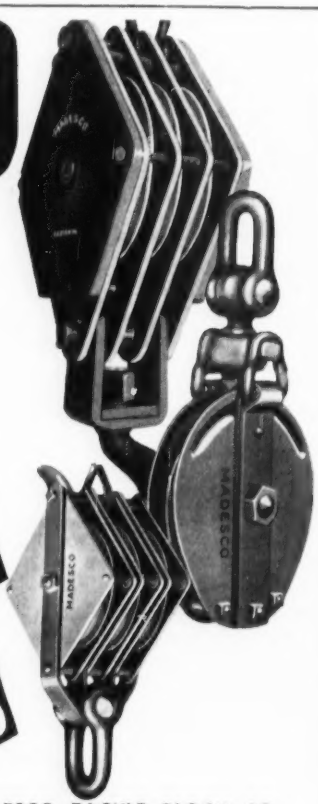
built best
priced best

See your MILLER distributor or write for FREE literature to:

Miller® Tilt-Top Trailer Inc.
457 S. 92nd St., Milwaukee 14, Wis.

RUGGED is the word PERFORMANCE is the PROOF!

You're hours and dollars ahead with MADESCO blocks on the job —they're *engineered* to shrug off the relentless beating that gruelling construction work involves. Around the clock and around the calendar you can be sure that MADESCO blocks have the ruggedness to serve you well . . . reflecting 30 years of specialized engineering in hoisting. Extra heavy space-saver crane hook blocks, extra heavy weighted blocks are among a *complete* line to exactly meet your needs. Consult your supplier or write our engineering department.



MADESCO BLOCKS

HAE MA 362 457

MADESCO TACKLE BLOCK CO.
MAIN OFFICE & PLANT, EASTON, PA.

NEW PUBLICATIONS . . .
continued

duplicate the work of several different machines.—**Form No. 12, Seaman-Gunnison Corp., 2763 South 27th St., Milwaukee 15, Wis.**

VIBRATING SCREEN—An 8-p bulletin describes the 10 sizes of Symons Rod Deck Screen now available. The lineup includes five new models that give a current range of 3 ft 6 in. to 6 ft 10 in. in length. Special attention is given to the multiple screening action and patented screening surface. The screening surface consists of individual replaceable spring rods.—**Bulletin 265, Nordberg Mfg. Co., Milwaukee 1, Wis.**

NEW CRANE—Schield Bantam's new 7-ton self-propelled crane and excavator Model CR-35 Bantam is described in a 4-p bulletin. Included are operating features, machine specifications, lifting capacities and digging ranges for all attachments.—**Bulletin CR-502, Schield Bantam Co., Waverly, Iowa.**

SOIL TESTING—A 24-p bulletin describes and illustrates soil samplers and accessories. As well as introducing several new devices such as the S & H Vane Shear Tester, the booklet covers engineering improvements to many of the earlier types.—**Bulletin 300, Sprague & Henwood Inc., Scranton 2, Pa.**

BIG TIRE AIDS—Equipment for maintaining large size tires is covered in a 16-p catalog by Schrader. It includes large bore tire valves, tools, gauges, air service fittings, repair and service tools.—**Catalog 35, A. Schrader's Son, 470 Vanderbilt Ave., Brooklyn 38, N. Y.**

RUBBER HOSE—Rubber covered single wire braid hose and reuseable Hoze-lok fittings that do not require the hose cover to be skived off are described in newly issued Parker catalog 4434. The catalog covers hose sizes ranging from 3/16 to 1 13/16 in., inside dia. Fittings are offered with four different connection ends: male pipe thread, SAE straight thread, 37-deg Triple-lok flare nose, and swivel nut that mates in metal-to-metal seat with 37-deg flare

NEW Allis-Chalmers TS-160

7 yd struck
9.5 yd heaped
155 horsepower
5 speeds to 25.4 mph
12-ton payload

Measure these advantages for a wide range of construction jobs . . .

22 hp per struck yard – Extra lugging ability for tough pulls, fast loading. Teams up with big equipment or works alone, handles a wide range of utility jobs, travels at speeds up to 25.4 mph.

Turns non-stop in less than 25 ft with 90-degree hydraulic steering . . . easy maneuverability in narrow cuts, faster cycles without reversing in tight turn-arounds.

Moves quickly from job to job . . . when required, transport wheels are available to meet legal load limits for highway travel.

Ask your nearby Allis-Chalmers construction machinery dealer for a demonstration now!

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WIS.

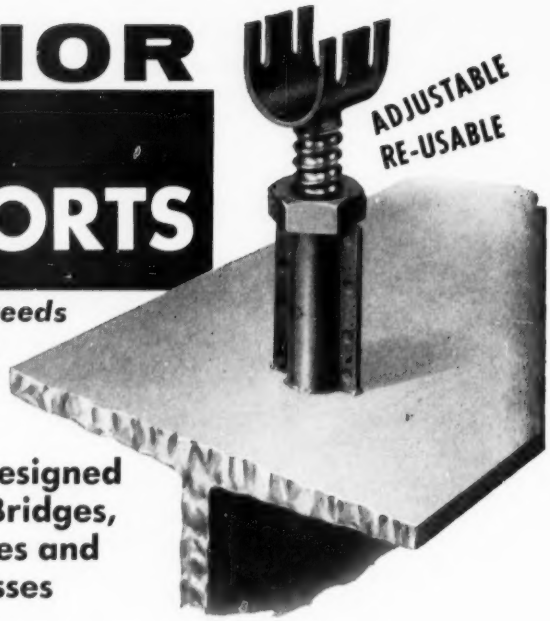
ALLIS-CHALMERS

Engineering in Action

New SUPERIOR Heavy-Duty SCREED SUPPORTS

Pat. Applied For

For Use with 1¼" and 1½" I.D. Pipe Screeds and Vibratory Screeding Equipment



ADJUSTABLE SCREED HOLDER

Consists of a 1" threaded rod to which is welded a cradle to hold the pipe screed. This cradle is slotted as shown so that the arms may be bent over to secure the 1¼" or 1½" I.D. pipe screed. Threaded onto the rods is a half nut which provides the adjustment.

Especially Designed for Use on Bridges, Underpasses and Overpasses

These Screed Supports are designed to take the heavy loads imposed by traveling vibrating screeding equipment. The Bases for the screed holders are of two types: (1) The Metal Base for use on structural steel members; (2) the Chair-Type Base for use on a plywood deck.

On Structural Steel: As shown above, the Metal Base is tack-welded to the top flange on approximately four foot centers. The Screed Holder is set into the base, and adjusted to height by turning the nut. The threads are fast, three to the inch, and of a contour type, non-clogging and easily cleaned.

On Wood or Plywood Decks: The Chair Base is set on the deck at approximately four foot centers. It is easily secured to the deck by nailing across the upturned legs. If desired, legs can be supplied of galvanized wire. The Chair Base with holder is shown below.

PERFORMANCE

Superior's Heavy-Duty Adjustable Screed Supports have been used on turnpike structures and other projects. Results in the field indicate that this method of supporting screeds provides a simple answer to an otherwise expensive and complicated set up. *Write for Bulletin.*

HOLDER INSERTED IN CHAIR BASE

Only the inexpensive bases are left in the concrete. The Adjustable Holders are easily removed, together with the pipe screed, because the holders are set, not screwed into the base. The nut fully covers the base opening and prevents concrete from entering.

Adjustable Standard SUPERIOR SCREED CHAIRS

FOR FORMED SLABS 4½" AND GREATER

With re-usable screed holders using 1" I.D. pipe and rectangular bars for screeds.

FOR SLABS ON FILL

With re-usable screed holders using 1" I.D. pipe and rectangular bars for screeds.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Ill. *(A Suburb of Chicago)*

New York Office
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

NEW PUBLICATIONS ...
continued

nose.—**Tube & Hose Fittings Div., Parker Appliance Co., 17325 Euclid Ave., Cleveland 12, Ohio.**

PAVERS—A new 12-p bulletin describes Blaw-Knox's PF-90 and PF-45 bituminous paver-finishers. The two-color brochure illustrates many of the various application possibilities of the PF-90 and gives general specifications on the hopper, screed, travel, conveyor-auger control transmission, power plant, master clutch, and over-all dimensions. In addition to data on the 10-ton capacity PF-90, information is presented on the smaller PF-45, which is designed for small asphalt jobs. —**Construction Equipment Div., Blaw-Knox Co., Mattoon, Ill.**

2-YD SHOVELS — Manitowoc Engineering Corp. has published a 16-p booklet describing their 3,000 series of 2-yd shovels and draglines and 40-50-ton cranes. Besides listing full specifications, the bulletin outlines with photos and charts the design exclusives of Manitowoc machines.—**Manitowoc Engineering Corp., Dept. MRS, Manitowoc, Wis.**

Useful Information

Want some helpful tips on aggregates preparation, concreting, earth moving, equipment, or insurance? If so, order your copies of these CONSTRUCTION METHODS reprints today:

Producing Aggregates
60¢ each, 10 or more, 50¢ each

Concrete Mixing and Placing

Paving—How To Get the Best Results

Earthmoving—An Art and a Science
50¢ each, 10 or more, 40¢

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35¢ each, 10 or more, 25¢

Contractors' Insurance
25¢ each, 10 or more 20¢

Comparative Specifications Sheets on:
a. Motor Graders
b. Crawler Tractors
c. Compressors
d. Tractor-Drawn Scrapers
e. Self-Propelled Scrapers
f. Self-Propelled Rollers

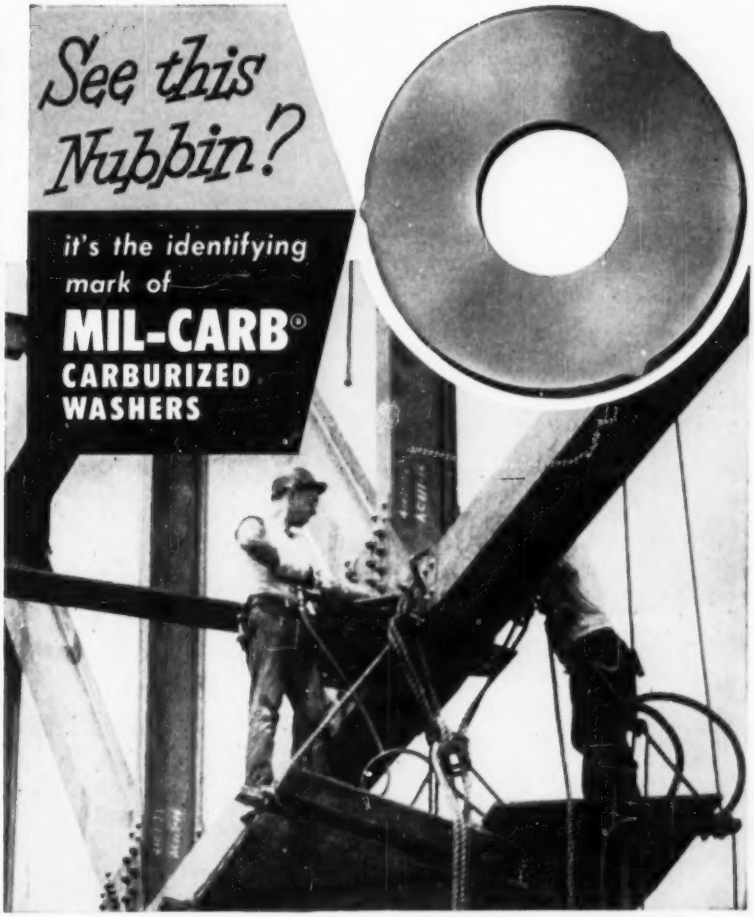

Photo courtesy Russell, Burdsall & Ward Bolt and Nut Co.

From an appearance standpoint, all washers, regardless of brands, practically look alike. But, *there's a big difference in quality!* That's why, for easy identification and to insure your getting the very best, Mil-Carb Carburized Washers are identified by 3 "nubbins" on the outside rim.

Mil-Carb washers are outstanding on at least three counts:

1. **Only Prime Quality Special Soundness Steel is used for strength equalling or exceeding the rigid specifications of ASTM designation A-325 *at all times!***
2. **A special treating process provides an exceptionally hard "outer skin" to resist grinding by the nut under the impact wrench *when others fail!***
3. **MIL-CARB washers are always uniformly flat and smooth with dimensions conforming to the American Standards Association.**

For your own protection and as a guarantee of the unyielding permanence of your steel structure . . . "look for the nubbin". . . specify MIL-CARB Carburized Washers. Available in six sizes, from ⅝" to 1⅜", packed in 200 lb. kegs.

Distributed by Leading Bolt and Nut Manufacturers and

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- Over 30 usable digging speeds in every Cleveland.
- Famous Cleveland multi-speed transmission provides most effective combinations of wheel and crawler speeds — the right combination of power and speed for every trenching job.
- Full-sized engines in every model ... accurate, fast, positive grade control ... more bucket capacity ... recognized superior quality throughout ... built by The Pioneers of the Modern Trencher, originators of every important trencher design feature.

80W SIDECRANE-BACKFILLER-TAMPER

LAYS PIPE • 30,000 Ft. Lb. Capacity • Power Boom, Up and Down • 4 Line Speeds • Long Reach, 21 Ft. • Sets Hydrants, Valves • Unloads, Strings • Pulls Sheathing, etc. • **BACKFILLS FAST — FROM EITHER SIDE OF TRENCH** ... 20 passes Per Minute • 4½ Ft. Scraper Board • Backfills Clean • Stays off Completed Work • Works Safer, Parallels Work • Fits All Job Conditions • **TAMPS AS IT FILLS** • Meets Density Specifications • Tamps from the Bottom Up • Parallels Work, No Straddling • Tamps Wider, Tamps Safer •

ONE MACHINE ... ONE OPERATOR ... DOES IT ALL

Good Everywhere

THE CLEVELAND TRENCHER COMPANY

20100 St. Clair Avenue • Cleveland 17, Ohio

ATTENTIVE AUDIENCE—Instructor Alvin Jones of Texas A&M College discusses crawler tractor preventative maintenance with mechanics and shop supervisors from the Dallas area. The courses are sponsored by the Texas Highway-Heavy Branch of the AGC.

AGC Chapter Sponsors PM Courses

SPECIALIST HELPS—D. V. McEmcrowe of the National Carbon Co. demonstrates an engine cooling system. He is one of many equipment specialists who act as instructors.

COURSES in preventative maintenance—the first ever sponsored by an AGC chapter—are proving an eye-opener for mechanics and shop supervisors of Southwestern contractors.

The classes are conducted by the Engineering Extension Service of Texas A&M College at the request of members of the Texas Highway-Heavy Branch of the AGC. Men from such firms as Brown & Root, Austin Contracting Co., and L. H. Lacy Co. have attended courses at Dallas, Houston, San Antonio, and Fort Worth. Contractors pay a $20 fee for each student.

To stress the dollar value of good preventative maintenance, the cost of operating a modern equipment spread is brought home to students. At each class, for example, they are asked to write down their estimate of the cost of a scraper tire on display. So far, guesses have ranged from $300 to $1,500.

"Invariably, the students are amazed to learn that the true cost of the tire to the contractor is $2,755," says Alvin Jones, Texas A&M instructor. "They underestimate cost all down the line. When they leave here, they have at least some idea of the contractor's investment in his equipment and, we hope, more respect for it."

Unlike schools conducted by manufacturers, who stress their own products, the five-day AGC-sponsored courses cover all makes of basic components for the principal types of heavy equipment. Special attention is given to the various makes of engines and fuel injection, lubrication, and cooling systems.

One of Jones' favorite training aids is the preventative maintenance manual distributed by Euclid. He favors the Euclid manual, he says, because it emphasizes two important factors; a good record system; and the need for

cooperation between operators and mechanics. The Euclid system is flexible enough to be applied to any equipment spread, Jones says, and the fact that all the information is wrapped up in one booklet also is an advantage.

The Euclid system includes a number of cross checks between operators, mechanics, and supervisors. On one form, the operator fills in four blanks at the end of each shift. This "driver's memo" covers the number of hours a rig has worked, the number of hauls it made, and the amount of fuel and oil it consumed. In an additional space the operator lists adjustments or repairs that he thinks a machine needs.

On another form in the booklet the mechanic lists repairs he has made, the time it took him to make the repairs, and the cost of replacement parts. The supervisor is in charge of the "control record," which shows when a rig is due for a preventative maintenance check-up. He simply lists the operating hours that have accumulated from day to day and checks these against a pre-arranged maintenance schedule. This information is obtained from the driver memos.

An optional form in Euclid's system, called the monthly data sheet, summarizes cost and availability information for each rig. This is obtained from a review of the mechanic's maintenance record, the driver's memo, and the control form.

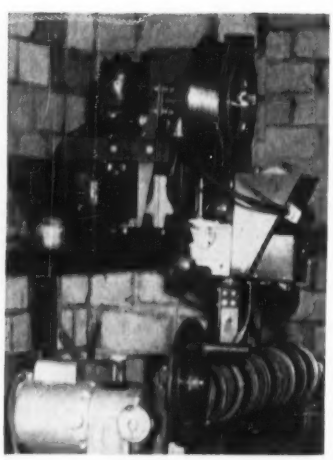
While the Texas A&M classes follow closely the curriculum established by manufacturers' mobile training courses, the school has the added advantage of being able to call upon all manufacturers for assistance. Manufacturers and local distributors furnish visual aids, cut-away models, and text books; experts from these organizations act as guest lecturers.

At the Dallas class, for example, guest instructors included representatives from Allis-Chalmers, Cummins, Detroit Diesel, and several local distributors for other manufacturers. Component specialists such as D. V. McEmcrowe of National Carbon Co., who demonstrated the various types of automotive engine cooling systems, also were present.

One criticism of the course might be that too much is crammed into too few days. But Jones and his associates take pride in the comment of a shop foreman who finished the Dallas course:

"I've been working for contractors for 20 years, and I don't think I've ever seen a diesel engine started right. Come Monday, that will change."

CAN YOU REPLACE A TRACTOR ROLLER FOR $7.00?



No? Well, for $7.00, on an average, you can rebuild a tractor roller—by hardsurfacing with a Lincolnweld Automatic Submerged Arc Welder. And it will outlast original equipment!

Lincolnweld deposits a special alloy surface which will stand hard wear for a long time. This deposited surface is so smooth that no machining is required.

If maintenance of earth moving equipment is your problem it will pay you to investigate the advantages of Lincolnweld Automatic Submerged Arc Welding.

CONTRACTORS! Write for Bulletin SB-1355 giving detailed information about Lincolnweld Automatic Welders.

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THE LINCOLN ELECTRIC COMPANY

Dept. 2719 Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment

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Reprints of the CM&E special report on techniques and equipment for producing aggregates now are available. Single copies, 60¢; 10 copies or more, 50¢ each. Address orders to: The Editor, CM&E, 330 W. 42nd St., New York 36, N.Y.

WHEN SNOW COMES...
YOUR TROJAN
KEEPS RIGHT ON WORKING!

You're working your Trojan on a routine loading job when an unexpected snowfall hits the city. You return to the garage, but only to change buckets because your Trojan is adaptable . . . Its ability to dig in and move or load tremendous amounts of snow *fast* helps restore a free flow of traffic . . Trojan has plenty of weight for traction *plus* dependable 4-wheel drive and oversize snow buckets are available. Speed and maneuverability permit quick work in all locations — all over town. And, when snows are gone, Trojan goes back to work on jobs that make it the most economical tractor shovel for all-year efficiency!

Special snow bucket sizes are: 2¾ cu. yds. for Model 154; 2 cu. yds. for Model 104 and 1½ cu. yds. for the Model LHM-75.

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TROJAN YALE & TOWNE

TROJAN* *REG. U. S. PAT. OFF.

YALE & TOWNE

TRACTOR SHOVELS

2 & 4 Wheel Drive Front-End Loaders

CONTRACTORS MACHINERY DIV., THE YALE & TOWNE MANUFACTURING COMPANY, BATAVIA, NEW YORK, SAN LEANDRO, CALIFORNIA

HOW FIVE BAY CITY EXCAVATORS DIG OVER 400,000 YARDS OF CLAY FOR ¾ MILE CANAL

An excavation of more than 400,000 yards is a mighty big project... even to an oldtimer in the field, like Walraven Bros. & Sons whose BAY CITY excavators are here shown at work on an impressive and important industrial drainage canal.

In this striking action photo, one ½ yard crawler is working as a frostbreaker on frozen surface-soil; a second as a back hoe—while 3 draglines (1½ yd., 1 yd., and ¾ yd. sizes) take big-capacity scoops of soil at every bite! Notice that the back hoe (lower right) is performing the tough job of breaking and moving heavy blue clay.

This big ditch ranges from 17 to 26 feet deep; has 100 foot bottom, and 150 foot top. The completed canal will be used to drain hot water from a gigantic utility plant to a lake three-quarters of a mile distant.

"We know we'll complete this job well within the deadline," says contractor Frank Walraven, Bay City, Michigan. "I've bought 22 BAY CITY machines," he commented, "and I know they're reliable on every job we take on—big OR small." Walraven knows from experience . . . 28 years of it, as a matter of fact.

You don't have to be doing just the big jobs, however, in order to make profits with BAY CITY machines. There's a BAY CITY for YOU in any of 3 mountings: Crawler, CraneMobile or CraneWagon. All have the famous balanced machinery assembly on sturdy unit-cast, alloy-steel base, and all are designed with boom feet directly over the front conical table rollers for maximum balance with any attachment.

Write today for free catalogs on BAY CITY EXCAVATORS from ½ to 1½ yard capacities.

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

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SPECIAL EDITION OF SAUERMAN NEWS

Brief items about the Sauerman Method... Crescent DragScrapers Slackline and Tautline Cableways... Durolite Blocks

Sauerman Bros., Inc. • 612 South 28th Avenue • Bellwood, Illinois, (Chicago Suburb)

DragScraper Uses Island for Parking Lot Fill

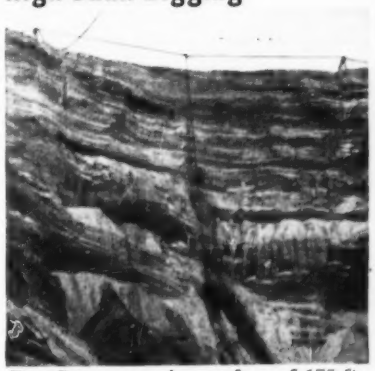
An island in the Kalamazoo River was used for parking lot fill by the Harrington Construction Co. of Fennville, Michigan. The job was handled by a Sauerman 3-yd. Crescent DragScraper and carrier assembly used with an Insley WB crane.

The hoisting line of the Insley served as track cable, running from the hoist drum through the middle sheave of the boom tip to a tree anchor on the island. The drag cable was attached to the front chains of the Crescent.

After digging and hauling to bank, the track cable was tensioned to lift the DragScraper and gravity return it to the excavation over 400 ft. away. Round trip took about a minute and a half. The 70-ft. crane boom was supported by two back stay cables leading from the boom tip to two tractors used as anchors.

(Condensed from Sauerman News No. 149.)

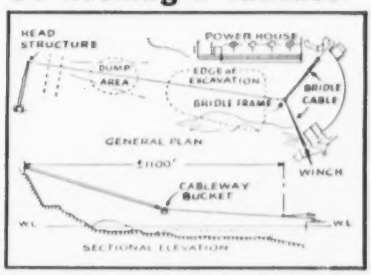
High Bank Digging



DragScraper works on face of 175-ft. bank, hauls load 600 ft. Rapid Shifting Tail Bridle changes line of operation.

(Condensed from Sauerman News No. 150.)

De-Rocking a Tailrace

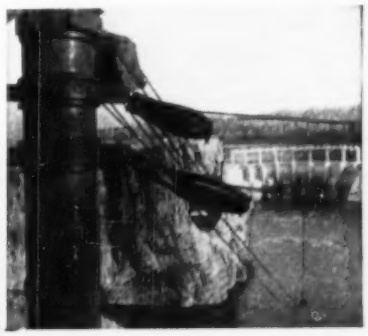


When the Washington Power Co. completed its Cabinet Gorge power plant and dam, an accumulation of rock at the discharge of the draft tubes had to be removed to insure unobstructed flow for the tailrace.

A Sauerman 2 ½-yd. Slackline Cableway, equipped with a rapid-shifting bridle system, was selected to do the job. Over 28,000 cu.yds. of rock varying in size from 6 in. to 5 ft. have been removed since the Slackline was installed. It is a permanent installation and is used periodically to clear the area in front of the draft tubes.

The Slackline operates on a 1000-ft. span. Material is excavated from 35 ft. of water and conveyed in the 2 ½-yd. bucket to a waste pile about 150 ft. below the tubular steel head mast. Power is supplied by a hoist located 190 ft. from the mast. The bucket and carrier assembly rides on a track cable, the lower end of which is attached to a rapid-shifting bridle frame controlled by a 10-hp. motorized spool-type winch. The rapid-shifting device permits the bucket's line of operation to be shifted laterally.

(Condensed from Sauerman News No. 143.)



MORE NEWS AND INFORMATION

Issues of Sauerman News giving greater detail about the installations on this page are available on request. For full information, tell us your interest or requirements and ask for catalog. Contact Sauerman Bros., Inc., 612 S. 28th Ave., Bellwood, Ill.

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FOR BALL AND ROLLER
BEARINGS

BALL BEARING LUBRIPLATE . . . a most effective grease type lubricant that also protects ball and roller bearings against rust and corrosion. Highly recommended for speeds up to 5,000 RPM and temperatures up to 300° F.

LUBRIPLATE No. 205 . . . an unusually light consistency, grease type lubricant made for use in anti-friction bearings operating at speeds in excess of 5,000 RPM.

LUBRIPLATE Nos. 1, 2, 4 and 8 are fluid type lubricants of various viscosities that have given outstanding results in anti-friction oil type bearings. Nos. 1 and 2 are recommended for high speed applications; nos. 4 and 8 are recommended for slow speed, heavy load applications.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA BOOK". . . a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.

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Please mail us sample copies of CD with complete information on how this construction market letter can help our business. No charge or obligation.

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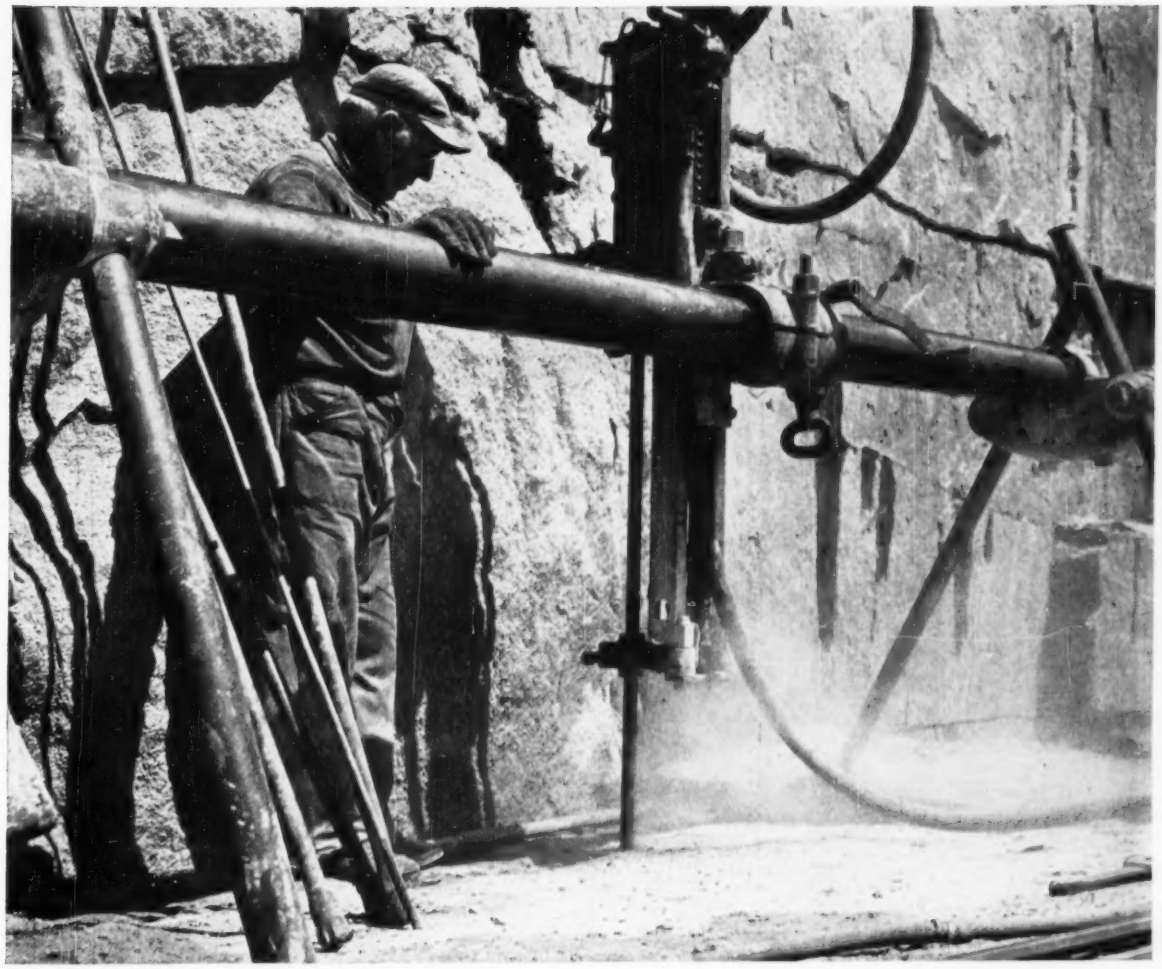


On an island off Jonesport, Maine, the granite quarry operated by Moose-A-Bec Quarries Co., Inc., uses Bethlehem Hollow in their drills mounted on quarry bars. *Drill steel supplier:* Bicknell Mfg. Co., Rockland, Me.

Quarrying Granite Off Coast of Maine

This picture, showing Bethlehem Hollow Drill Steel biting into granite, was taken at a quarry operated by Moose-A-Bec Quarries Co., Inc., on Hardwood Island, at Jonesport, Me.

At this quarry, which is one of the country's few remaining offshore granite workings, rectangular blocks of medium hard, abrasive stone are cut from a solid mass in single units weighing about 15 tons, for use in the building industry. The drilling is accomplished with jackhammers and drifters equipped with Bethlehem Hollow Drill Steel exclusively, in rounds, hexagons and quarter octagons, and fitted with carbide-insert bits. The quarry management sums up the performance of the drill steel in one word: "Excellent."

Bethlehem Hollow Drill Steel gives a good account of itself in all kinds of rock drilling jobs because it is rolled from fatigue-resistant steel, and has a hole of uniform diameter, centrally located in the bar. Bethlehem Hollow also has a wide quenching range. What's more, it is easy steel to heat-treat for the proper balance of toughness and wear-resistance, making possible long-wearing threads and sturdy shanks.

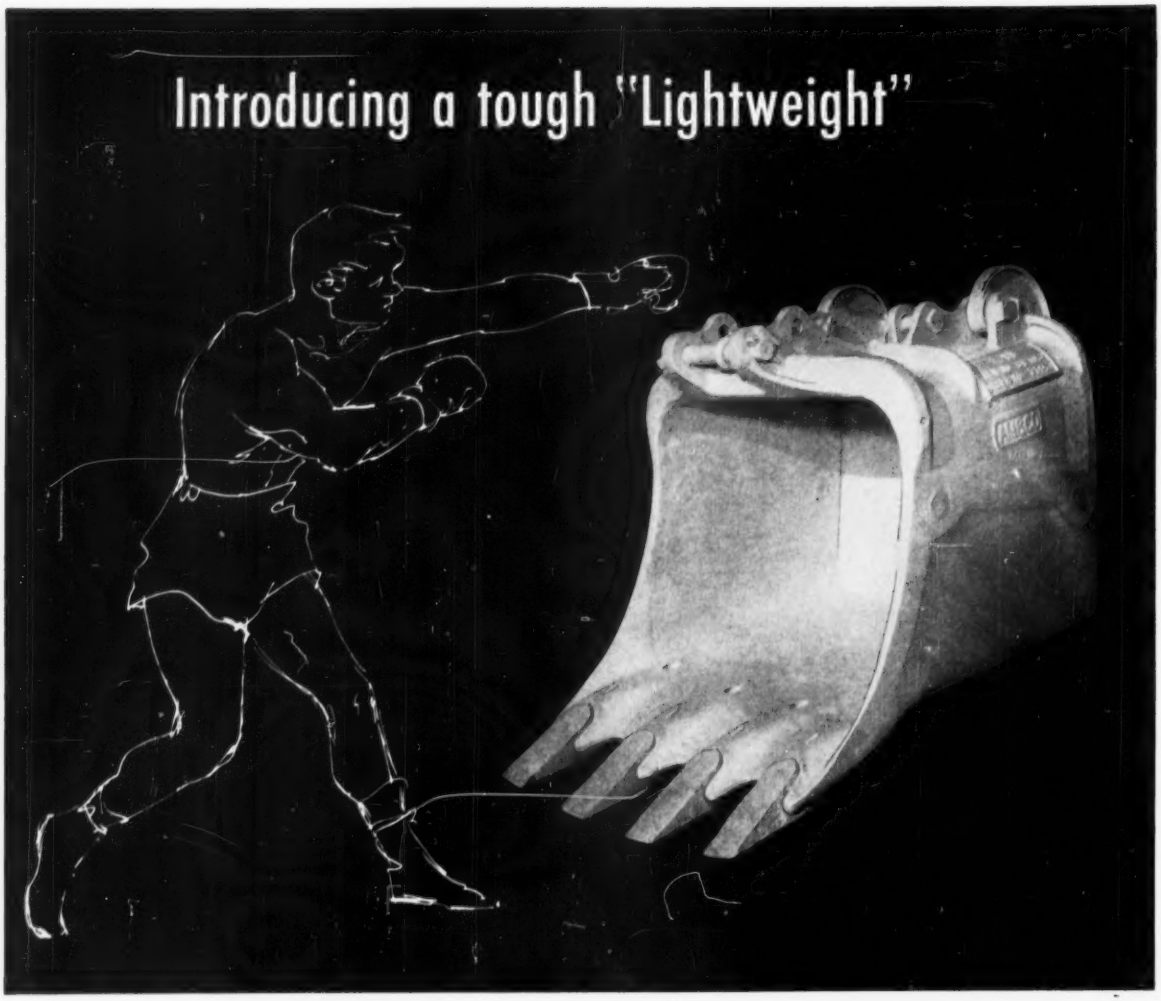
Bethlehem Hollow is furnished in Carbon and Ultra-Alloy grades in regular lengths of from 18 to 27 ft. Longer lengths can also be furnished. Bethlehem Hollow is hard-working drill steel—good steel to keep in mind for any rock drilling job.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM HOLLOW DRILL STEEL CARBON AND ULTRA-ALLOY

BETHLEHEM STEEL



NEW Amsco® Manganese Steel LIGHTWEIGHT DIPPER

Rugged 3/4 yd. dipper, made of the "toughest steel known," actually work-hardens under impact

Those big, tough Amsco Dippers now have a smaller brother. With this new, rugged, lightweight dipper, small shovel operators can enjoy the combined advantages of long-wearing manganese steel and proved Amsco design features, such as:

- One-piece manganese steel back castings
- Arch formed by complete box section for maximum strength
- Teeth are set for clean, fast digging
- Interior is designed for rapid dumping
- Lugs for handle, back, and braces are cast integral with back—for extra strength
- 25% lighter than standard Amsco 3/4 yd. dipper, permitting use on light-duty shovels and allowing their developed power to be more fully utilized
- Curved door in back, for full-capacity loading with each pass

Ask your shovel manufacturer for full information—or write us direct for descriptive literature.

"Vital Statistics" on this new lightweight champ

Height of front over teeth	4 ft. 5/8 in.
Height of back	2 ft. 7 in.
Opening at top	2 ft. 5 in.
Opening at bottom	2 ft. 7 in.
Approximate weight	1550 lbs.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DELAWARE, OAKLAND, ST. LOUIS, JOLIETTE, QUEBEC

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■

CLASSIFIED ADVERTISING

F. J. Eberle, Business Manager

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For Sale 197

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When you want to buy or sell used or surplus new Construction equipment and/or accessories, or have other business wants — advertise them in the SEARCHLIGHT SECTION for quick, profitable results!

Methods Memo

AGC's New Home

New national headquarters building of the Associated General Contractors begins to take shape in Washington, D.C. The three-story reinforced concrete structure is slated for completion in May, 1958. Joseph F. Nobel Co. of Washington is the general contractor.

More Operators Needed

The Labor Department in Washington is worried about the prospect of a shortage of trained equipment operators as the national highway building program picks up speed.

Millard Cass, Deputy Under Secretary of Labor, estimates that 50,000 additional operators will be needed to complete the highway network. He said the Labor Department's Bureau of Apprenticeship, in cooperation with state highway departments, contractor organizations, and labor unions, is trying to develop specialized training programs for a number of operator classifications.

One such program already has the Labor Department's stamp of approval. It is an apprenticeship training program soon to be offered in Texas under AGC sponsorship. Apprentices will learn to operate motor graders, cranes and shovels, tractors, and scrapers.

A Safety Hint

Contractors seldom can afford to set up standard sprinkler systems to protect against fire in temporary buildings on the job. But, as the National Safety Council points out, almost every job has at least two vulnerable spots that should be protected by portable sprinklers. They are the blueprint racks and the oil shanty. Both are highly susceptible to flash fires.

There are several types of portable sprinklers. One consists of a 1-gal glass container of carbon tetrachloride suspended from the ceiling with a fusible sprinkler release attached. It goes to work automatically at a predetermined temperature.

A feature of this type is that the extinguishing agent is non-freezing. There is no maintenance problem with portable sprinklers, and they are easy to take down and move from job to job.

Somebody Goofed

There were some pretty embarrassed masons out in Long Beach, Calif., last month. Members of Local 13 of the Bricklayers, Masons, and Plasterers International Union had gathered to lay the cornerstone for their new union hall. John J. Murphy, secretary of the union, had come all the way from Washington, D.C. for the ceremony.

Murphy spread the mortar. Then members of the local hoisted the stone—and found it was too big for the hole. The ceremony was held 10 days later.

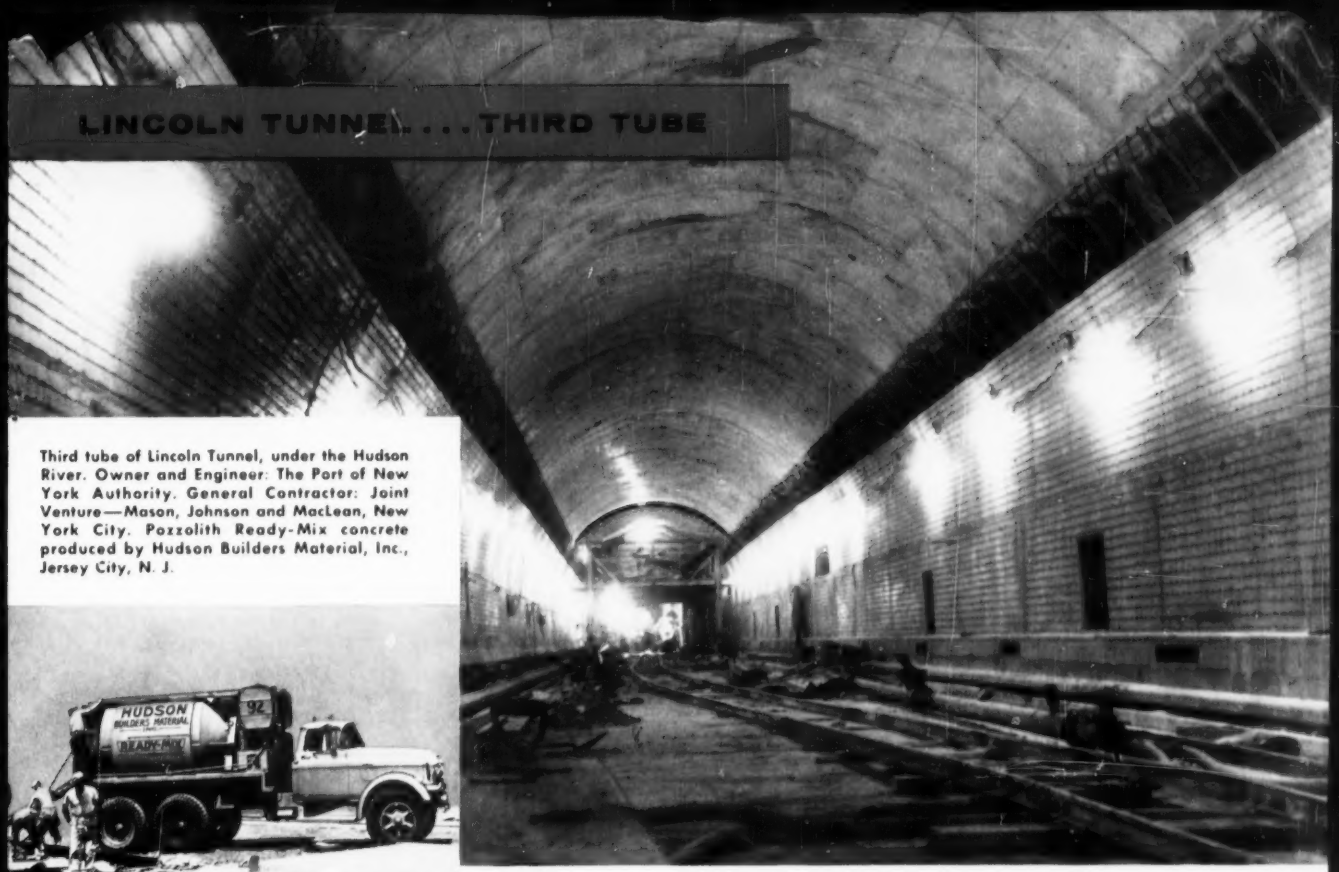
Emergency Power

A rear dump truck came to the rescue of an isolated construction camp on the Trans-Canada Highway when the camp's diesel light plant broke down. Here's how Bob McLaughlin, shop foreman for Dawson, Wade & Co., tells the story:

"One evening just before dinner our diesel light plant broke down. It turned out to be a major breakdown. This plant serviced 10 bunkhouses, a large shop, our office, the kitchen and its walk-in refrigerators, and a 16-trailer camp for married workers."

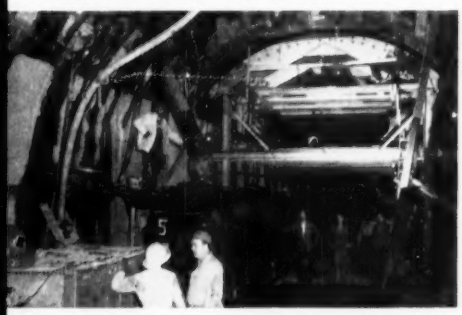
"Fifteen miles down the road we have another camp where our fleet of eight LeTourneau-Westinghouse C Rear Dumps were operating. We sent for one of those rigs, hooked the main camp lines to its generator, opened the throttle, and in a jiffy we had all the electricity we needed."

Merry Christmas

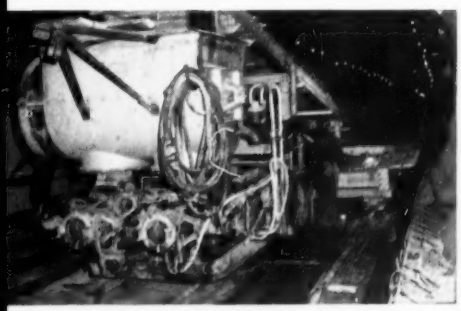


Third tube of Lincoln Tunnel, under the Hudson River. Owner and Engineer: The Port of New York Authority. General Contractor: Joint Venture—Mason, Johnson and MacLean, New York City. Pozzolith Ready-Mix concrete produced by Hudson Builders Material, Inc., Jersey City, N. J.

Ready-mix truck on top side of tunnel discharges concrete into "elephant trunk" . . .

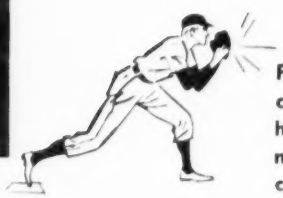


Concrete goes down "elephant trunk" to buggies in tunnel . . .



Concrete pump receives concrete from buggies and pumps it into tunnel lining forms.

"Triple-Play" Concrete . . . with POZZOLITH



From ready-mix truck . . . to buggy . . . to concrete pump . . . to tunnel lining—"triple-play" handling while retaining good flowability and minimum bleeding—this was the performance of concrete produced with Pozzolith in the construction of The Port of New York Authority's $100,000,000 Lincoln Tunnel third tube.

Concrete in the *hardened* state was also improved—compressive strength tests were above specifications, and appearance is excellent.

These results were obtained with Pozzolith because it produces desired workability with lowest water content, and because Pozzolith is key to the control of entrained air, and control of rate of hardening.

Employed in more than 150,000,000 cubic yards of concrete for structures of all types, Pozzolith aids in producing desired properties most advantageously. We shall welcome an opportunity to discuss and demonstrate the benefits of Pozzolith for *your* projects.

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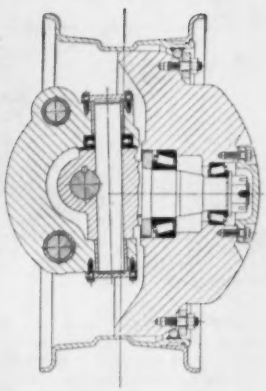

How **GALION** mounts the front end assembly of the T-700 on Timken bearings.

World's largest motor grader weighs more than 20 tons—24 TIMKEN® bearings take the load

THE world's largest motor grader (above) sets up enormous loads as it slams a road into shape. And when it rolls on a steep grade, the thrust loads are even greater. To make sure their T-700 Grade-O-Matic could take *all* the loads, the Galion Iron Works & Manufacturing Company specified 24 Timken® tapered roller bearings—for the reverse gear case, transfer case, front wheels and king pins, and the rear wheel tandem drive.

The tapered construction of tapered roller bearings lets them take all combinations of loads—thrust as well as radial. And because they're case-carburized to produce hard, wear-resistant surfaces over tough, shock-resistant cores, Timken bearings take the shock loads of heavy construction work. And full line contact between rollers and races gives them extra load carrying capacity to stand up to the job day after day, season after season.

Timken bearings are geometrically designed to provide true rolling motion—precision manufactured to live up to their design. They practically eliminate friction. And by holding shafts concentric with their housings, they make closures more effective—keep lubricant in, dirt out.

And to make sure we control the quality of Timken bearings all the way down the line, we even make our own steel—an extra step no other American bearing manufacturer takes.

Make sure you get all these advantages in the machines you buy or build. Specify Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".

This symbol on a product means its bearings are the best.

TIMKEN *TAPERED ROLLER BEARINGS ROLL THE LOAD*

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